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THESIS

GERMAN COUNTER-C^3 ACTIVITY AND ITS EFFECTS
ON
SOVIET COMMAND, CONTROL, AND COMMUNICATIONS
DURING OPERATION BARBAROSSA

by

John Francis O'Neil, Jr.

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and the Hoover Institute on War, Revolution and Peace at Stanford University, Palo Alto, California, and a trip to the National Archives in Washington, D.C.

The results of this study indicate no counter-C^3 doctrine on the part of the Germans, and no concerted counter-C^3 plan to disrupt Soviet C^3 during Operation Barbarossa. This study does indicate a dramatic disruption of Soviet C^3 during the opening stages of Operation Barbarossa.

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German Counter-C^3 Activity and its Effects on Soviet Command, Control, and Communications During Operation Barbarossa

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I. INTRODUCTION

"When we stress the significance of the past, we have in mind, the necessity for a wise combination of conclusions from history with contemporary problems."[1]

So wrote Marshal of the Soviet Union, A. Grechko, then Minister of Defense of the Soviet Union, in the Military History Journal on the twentieth anniversary of the German invasion of Russia. He went on to say, "It is difficult to understand those comrades who underestimate the experience of the past and the significance of military history."[2]

There is a considerable effort, at present, devoted to the study and development of Command, Control, and Communications, that is, "C-cubed", in this country. A knowledge of the attributes and requirements of effective C^3 is being amassed and appreciated and the liabilities of inadequate C^3 are also coming into focus. While some very distinguished individuals are quite ably attempting to solve the "C^3 problem", not sufficient attention is being devoted to the area of countering Command, Control, and Communications, that is counter-C^3. This is a very worthy undertaking, indeed, since the more we learn about effective and proper C^3

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[1]Marshal of the Soviet Union, A. Grechko, "On the Anniversary of Fascist Germany's Attack on the Soviet Union," Military History Journal (July, 1961), 13.

[2]Ibid.

and the degree to which such systems enhance military effectiveness and preparedness, the more we become aware of the vulnerabilities of an environment without appropriate C^3. One need only employ common sense to determine that if an area possesses the potential for such grave vulnerabilities, a modern enemy would be at work to exploit such vulnerabilities. Friendly forces should likewise be occupied in countering the enemy's command, control, and communications. It is the purpose of this thesis to examine past counter-C^3 efforts against our most probable enemy, the Soviet Union, to determine the effectiveness of such effort. From this information it is a further purpose to determine what exposure the Soviet Union has had in the counter-C^3 area with the hope of understanding their vulnerability to counter-C^3 as well as their inclination to employ such activities. It is important to study and analyze the Soviet Union as a potential opponent in armed conflict and to develop a thorough understanding of Soviet military thinking. Such study and analysis, of course, is appropriate of any potential opponent. Of the Soviets, in particular, many are puzzled by what seem to be illogical measures on their part. Much of the confusion may be explained by a difference in approach between Soviet and U.S. methods to handle common problems. There are cases, however, when the approaches are completely opposite to each other. As an example, consider the Soviet proclevity for numerous, simple, but effective systems

while the U.S. tends towards a few complex, high technology systems. A study of past Soviet experiences can provide an appreciation and understanding of their actions and, with limits, can provide an insight into their military doctrine. The proper Soviet military experience to examine in this regard is their most recent military experience of significance, the Second World War. A glance at this experience reveals adoption by the Soviets of many of the facilities and techniques employed by the German Army against them. Such adoption by the Soviets, as just cited, serves to increase the value of a project such as proposed in this thesis in that we stand to benefit not only from scrutiny of the effects of those German undertakings, but observation of those undertakings themselves.

Few Americans have an appreciation of the heavy, lingering impact on Soviet society of the German invasion of the Soviet Union on 22 June 1941. Innumerable articles, as well as entire books, have been written on the subject, extolling the importance of that date in particular, and the war in general, on the development of Soviet Military Doctrine. Indeed, the Soviet appellation of that war, specifically the Great Patriotic War, indicates the reverence that war attracts and the profound influence it exerts. The official Russian history of the Great Patriotic War reads in part:

> "The Party and the Government recall the terrible lessons of this early period of the Patriotic War and

presently do everything necessary to keep the Soviet Armed Forces in a permanent state of combat readiness."[3]

Other works on Soviet Military Doctrine and Strategy make the following comments.

> "The great failure of the Red Army in June, 1941 only served to reinforce strongly this determination to be even better prepared and more vigilant. Bolshevik thought has always demanded vigilance to parry deception and to ward off the enemy's attempts to penetrate their deception."[4]

Marshal of the Soviet Union, V.D. Sokolovskii, when writing his book on the military strategy of the Soviet Union said,

> "The experience of past wars was only used to demonstrate various propositions and also to confirm new laws and phenomena of armed combat whose origin could be traced to past wars."[5]

Perhaps just as enlightening is a comment by an adversary who saw first hand the planning and effects of such activities as previously alluded to during World War II. Although speaking specifically of Soviet installations, Generalmajor Abberger's retrospective comment is very succint regarding Soviet shortcomings in the Great Patriotic War. "It is unlikely that the Russians will repeat such mistakes."[6]

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[3]History of the Great Patriotic War of the Soviet Union 1941-1945, (Moscow, 1961), II, 11.

[4]R.L. Garthoff, Soviet Military Doctrine (Santa Monica 1953), p.225.

[5]Marshal of the Soviet Union V.D. Sokolovskii, Soviet Military Strategy (Santa Monica, 1963), p.514.

[6]Generalmajor a.D. Erich Abberger, Generalmajor a.D. Paul Block and Oberst Wilhelm Willemer, Destruction and Reconstruction of Roads and Railroads in Russia During World War II, (Unpublished Foreign Military Typescript #P198 Historical Division USEUCOM), p.17.

The point of all this is that the Soviet Military has learned much from its past experiences as well as those of its adversaries. It is with the belief that the Soviets have indeed learned from past experience and will, in fact, not repeat past mistakes that this thesis is pursued.

Pursuant to a comprehensive, effective study of the Soviet counter-C^3 experience at the hands of the Germans in the Great Patriotic War, it is necessary to understand the term Command, Control, and Communications. Unfortunately, no one full and sufficient definition exists for C^3. Various versions of a definition circumscribe the elusive C^3 and provide some appreciation for it. The Joint Chiefs of Staff offer the following:

> "Command Control is the exercise of authority by a properly designated commander over assigned forces in the accomplishment of his mission.
>
> A command and control system comprises the facilities, equipment, procedures and personnel essential to the commander for planning, directing and controlling the operating of assigned forces pursuant to the mission assigned."[7]

Noted civilian experts in the C^3 community have also contributed to the attempt to precisely define C^3. Dr. Thomas P. Rona of the Boeing Corporation has stated in general terms,

> "A C^3 system is one that handles human generated or human perceived information in order to support a military mission."[8]

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[7] Department of Defense Dictionary of Military and Associated Terms (Washington, 1979), p.24.

[8] Speech, Thomas P. Rona, 1978.

More specifically, Dr. Robert Conley, Chief Scientist for C^3 Programs in the Office of the Chief of Naval Operations says:

> "Command and control is a process of resource allocation by a recognized point of authority to accomplish a given objective(s).
>
> A command and control system is an assemblage of elements that exhibits the properties of command and control."[9]

Best of all, however, is the assessment by Dr. Richard Stark of the Aerospace Corporation that:

> "C^3 consists of two parts. Command control is the decision making function performed by a designated commander. Communications comprises facilities, equipment, procedures, and personnel needed to communicate support information for use by the commander in performing his command and control functions and to communicate his decisions to the assigned forces."[10]

Not specifically mentioned in the above definitions is intelligence, though benignly implied. However, intelligence is such an integral aspect of adequate C^3 that one finds the term C^3&I, meaning Command, Control, Communications, and Intelligence. Intelligence should be understood, then, to be included in a proper C^3 environment. So, one might think of C^3 as the collection and communication of information, by a variety of means, which, when processed by human and material methods, assists the commander in the decision process. Further, C^3&I facilitates the communications and implementation of decisions and subsequent

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[9]Robert Conley, "Military Command and Control (C^2)," Signal (January, 1979), 15.

[10]Letter, Richard Stark, 1978.

reevaluation of that implementation. Finally, C^3&I provides a means of feedback to facilitate monitoring and modifying or adjusting the decision, or situation, through the facilities and processes just described. Included in the facilities, information, processes, and methods mentioned are such items as sensors, intelligence, early warning, radios, telephones, computers, messengers, decision aids, and orders, to name just a few.

If C^3 is in fact to facilitate the implementation of decisions, the term communications must take on a broad definition in relation to controlling the means of implementing decisions. Frequently when speaking of communications in a strategic, nuclear, C^3 context, communications are restricted to the literal communication of a directive or information. Such is the impression derived from the authoritative definitions listed previously. In a more conventional scenario, however, one must consider control means other than the communication of information. Methods of deployment are clearly important control measures when implementing decisions involving force dispositions. The criticality of force deployment methods as control measures becomes painfully evident in their absence, as has been the case in several national scenarios developed lately. For the reason of control just cited it becomes obvious that methods of force deployment, such as transportation means and facilities must be included in the C^3 facilities, processes, and methods listed earlier to provide the complete

command and control of a situation or action required by a commander.

Specifying counter-C^3 should now be a less demanding assignment. Counter-C^3 strives to prevent a C^3 system from functioning correctly by manipulating enemy C^3 to achieve a favorable result. Counter C^3 requires:

1) knowledge of the enemy's C^3 philosophy and architecture,

2) detailed operational and technical knowledge of the victim system,

3) a clear statement of the goals and desired capability, and

4) knowledge of how friendlies operate and appear to the enemy.[11]

Appropriate actions, such as eliminating sensors, delaying orders, overloading C^3 systems or deceiving its users would degrade a system while total destruction of communication mediums could completely interrupt a system, albeit while other aspects are functioning perfectly. It appears then that achieving success at countering a C^3 system is considerably easier than operating and maintaining one. Considered in other terms, one might achieve equal or greater results with a given amount of effort in countering

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[11]Lecture, Dr. William Sheppard, Naval Postgraduate School, 1979.

an opponent's system than one would gain by expending that same amount of effort on one's own C^3 system. The two commodities are certainly not equatable, we cannot substitute one for the other. However, a truly effective, balanced approach must include both since in many situations a desired result can be achieved by either means.

To properly examine counter-C^3 in this thesis required an understanding of C^3&I, that is, an understanding of each of the individual components and the collective sum which they form. Examining counter-C^3 as employed by the Germans against the Soviet Union in World War II required research into the nature of C^3 circa 1941, particularly in the Soviet Union. First studied were the most authoritative published sources, for example, John Erickson's The Road to Stalingrad and Paul Carell's Hitler Moves East, to develop an appreciation for that era as well as the chain of events which evolved into Operation Barbarossa, the German invasion of the Soviet Union. The next undertaking was to examine systematically archival manuscripts written by German officers for the United States following the war. While compiling the specific counter-C^3 activities used by the Germans, reconstruction of a reasonable facsimile of Soviet C^3 from English language sources began. In particular, the published Air Force manuscripts were examined, as well as the Army's unpublished manuscripts. Interviews with participants of combat on the Eastern Front and noted historians

of that period were invaluable in providing an appreciation for the flavor of the times involved, and reconstructing Soviet C^3 as it existed in June 1941. The process of evaluating the effects of the German counter-C^3 activites on Soviet C^3 began with these facts and a knowledge of Soviet Military Doctrine. This evaluation of German counter-C^3 is, of necessity, an evolving one, just as is the Soviet C^3 and counter-C^3 doctrines.

Whenever available, material from both German and Soviet sources was scrutinized to obtain a truer, more objective picture. In warfare as in life, a perspective affects vision. So, what might have appeared to the Soviets as a detailed, well-planned and well-executed activity, was perhaps to the Germans simply a peripheral by-product of proper planning. As an example consider the initial German attack on 22 June 1941. The Luftwaffe very carefully selected targets to be struck by the initial flights of aircraft. Army units also carefully selected targets for attack by artillery to properly support the scheme of maneuver. To Soviet commanders unable to communicate with border and frontier units, such preparatory fires must have surely appeared as part of a specific plan to disrupt command, control, and communications instead of simply supporting fires. Researching both perspectives, in this particular instance, presented a complete sequence of cause, effect, and reaction. Only English language sources were considered, as dicated by the author's linguistic ability, with the sole

exception of some archived captured German and Russian maps from World War II.

Initially, the time frame of interest included the planning and initial stages of execution of Operation Barbarossa. The planning stage commenced on 18 July 1940 and continued until the attack on 22 June 1941 while the period of execution of interest lasted until 31 July 1941. Although June and July 1941 remained the primary period of time of interest, the materials available, and the actual chain of events in history forced this effort more and more towards the initial attack of 22 June 1941. More planning was possible for this one particular action than any other during the period of interest. Events and actions planned in detail for the initial attack appeared representative of the activities undertaken by the German forces as the operation progressed through June and July, 1941. Therefore the vast majority of time was spent researching and considering the planning and execution of Germany's initial attack on the Soviet Union on 22 June 1941.

With a topic as specific as German counter-C^3 in Operation Barbarossa, there exists a scarcity of information, particularly in the English language. Command, Control, and Communications as a whole, is a relatively new packaging concept for important factors which have always been present in military operations. Military planners of the Second World War, and subsequently their historians, did not think or write in "C^3 terms", although there is evidence

they certainly considered each of the elements individually, and perhaps in combination. So the task of research was complicated by a difference of terms. The enormity of the situation on the Eastern Front completely dwarfs any single action. Further, many details of the war were lost on the losing side, but what should have been available from the winners was severely restricted by the secrecy of the Soviet state. These factors are mentioned as problems and not necessarily as insurmountable barriers.

There are also problems which may face the reader. Although the principles of C^3 remained fairly constant certainly the implemention had changed drastically since 1941. One must keep in mind that Operation Barbarossa was planned to be a Blitzkreig and, in June and July 1941, possessed all the necessary characteristics. Although war on the Eastern Front continued for almost four years, the initial blitzkrieg was a very violent, compact, quick, extremely eventful period in which more was possible, and in fact occurred, than during longer, more protracted periods of conflict later in the war.

Designed to achieve a quick victory on a massive scale, Operation Barbarossa caused a multitude of truly remarkable occurrences in the realm of C^3 in a very short time.[12] Some of the effects were achieved or reversed solely because

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[12]See John Erickson, The Soviet High Command (Great Britain, 1962) and The Road to Stalingrad (London, 1975).

of such a short, intense operation. As short as the time may have been, the counter-C^3 effects were devastating and enduring. In considering these effects, and any short or long-term Soviet remedies, the reader must appreciate two facts: 1) Operation Barbarossa was conducted in the Russian homeland, and 2) Russia was an expansive, rural country.

For those who may have never experienced at least a contrived version of command, control, and communications in wartime, it is a beast to behold! As a simple example, consider a private conversation on the common telephone. As efficient and reliable as it is, there are instances when connections are difficult to establish,or clarity is lacking for a variety of reasons, not the least of which is the operator. Imagine what it might be like when such difficulties lie between a decision maker and the lives of literally millions. While the intensity of the situation requires ever increasing communications, often beyond the realm of human possibility, an enemy is doing his utmost to directly confuse the issue. As the criticality increases, the amount of information increases, the amount of reaction time decreases, and communications reliability degradates, if it exists at all, while the randomness of conflict intercedes. What may have been by design an effective assist in peacetime can become a liability in war where confusion is proliferated and clarity nullified. Clearly this is an undesirable situation, the avoidance of which is worthy of intense effort.

With America's increasing role in the North Atlantic Treaty Organization (NATO), a confrontation with the Warsaw Pact becomes more likely and this study therefore assumes greater relevance and import. Two facts immediately become apparent. First, committed as we are to the European Theater through NATO, we cannot gain enough insight and experience about combat in that region. One very important way of doing this is to examine closely the advanced techniques of warfare employed by the Germans in World War II while also studying the Soviet experiences and performance in that same war. Second, an investigation of the Soviet military since 1939 reveals a remarkable similarity between present Soviet Doctrine and that employed by the Wehrmacht in 1941. Indeed, it appears the Soviets have evolved full circle from being at the mercy of the German attack on 22 June 1941 to assuming that same attacker's preemptive posture! An understanding of this doctrine must be gained through whatever means available.

Studying history for history's sake is not what is proposed here, but rather what Marshal Grechko so eloquently stated, "For a wise combination of conclusions from history with contemporary problems."[13]

The Great Patriotic War offers a unique opportunity to study Soviet combat in the European environment while observing the German tactics which, in large measure, parallel

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[13]Grechko, "Anniversary of Attack on Soviet Union," p.13.

contemporary Soviet tactics. Although this is not an all-encompassing approach, it provides insight into Soviet organization and strategy. One must only make the obvious analogies from World War II C^3 to the present.

Finally it must be said that for many years Soviet Military Strategy has evolved quite closely in the tracks of U.S. Strategy. Perhaps now the U.S. can glean some valuable lessons from the Soviet experiences with counter-C^3.

II. A DESCRIPTION OF SOVIET COMMAND, CONTROL, AND COMMUNICATIONS IN 1941

Although the casual observer may be surprised at some subtle similarities, Command, Control, and Communications in 1941 was obviously simpler than it is today, and Soviet C^3 was even more primitive compared with the technological level of 1941. The Soviet Union employed C^3 implements similar to those of other nations, but the USSR's own peculiar national objectives, society, and internal bureaucratic organizations influenced its C^3 system and made it different from other national C^3 systems of 1941. Aside from the influencing factors just mentioned there were others, listed below, which are particularly important to this study. The technological inferiority of Soviet C^3 hardware, compared with German and American equipment of the same era,[14] restricted the quality of performance and versatility of Soviet C^3. The unique, very centralized political system of the Soviet Union and the political and military participants in that political system combined to further limit the versatility and responsiveness of the Soviet C^3 system. The geographical size of the Soviet Union increased the requirements of the Soviet C^3 system and magnified its vulnerability to counter-C^3 activities.

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[14]Interview, Kamill Usfensky, Cambridge, 1980.

The Soviet-German Nonaggression Pact of 1939 gave the Soviet Union certain reasonable and practical assurances of security along its western border and very probably diminished, relative to other required military actions in the west, the urgency of completing fortifications and supporting facilities along the new border with Germany. Although the Soviet Union was supporting an enormous army and maintaining remarkable quantities of military equipment in the western military districts, the Soviet Union was in the midst of a period of peace. While expanding its own influence westward, the Soviet Union was conscious not to upset the delicate balance of peace with Germany. Reconnaissance flights and other intelligence gathering activities were pursued by the Germans even as the Soviet Union increased its flow of economic materials to Germany. The Kremlin leaders enforced restraint upon Military District Commanders who initiated appropriate military precautions in response to the little that was known of German military activity along the border. Instead of heeding the implicit warning of German military activity along the border,[15] the Soviets adopted a rather accommodating posture, even returning, without reprisal, a German airman captured on an intelligence gathering mission over the Soviet frontier. A TASS communique of 14 June 1941 alleviated growing fears of the

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[15] John Erickson, The Road to Stalingrad (Harper, 1975), p.82.

Soviet populace and military of possible German aggression. It stated,

> "Germany is observing the conditions of the Soviet-German Nonaggression Pact just as rigidly as the Soviet Union, in view of which, in the opinion of Soviet circles, the rumors of Germany's intention to break the pact and undertake an attack on the USSR have no foundation whatever, and the recent transfer of German troops, freed from operations in the Balkans, to the eastern and northeastern regions of Germany is connected, it must be supposed, with other motives having nothing to do with Soviet-German relations."[16]

A less desirable side effect of this communique was a relaxation in the readiness level of the massive (approximately 2,500,000) forces along the western frontier the week before the German attack. The Soviet leadership in Moscow was deceiving itself about the immediate threat developing along its western border, a threat it was unprepared to meet.

The Soviet military, still suffering after-effects of the purges of the 1930s was also unprepared for the particular, immediate threat developing in the west. A leadership void, from company to corps levels, created in the Red Army by the purges had not been filled by 1941 since there were simply not enough qualified officers to fill the positions available. Because of a lingering element of fear still pervading the Red Army, officers and non-commissioned officers were reluctant to exercise their own initiative for fear of making mistakes, i.e., it was safer simply to follow orders exactly. The modernization of military thought,

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[16] Aleksandr Nekrich, 22 June 1941, tr., Vladimir Petrov (Columbia, 1965), p.201.

equipment, and organization, begun by Marshal M.N. Tukhachevskii in the 1930s was reversed following his demise in the purges. In December 1940, after careful study of the German campaigns in Poland and the West, the army did initiate a program to reorganize and modernize its armored forces, but to effect such a program on an organization the size of the Red Army would require more time than the Germans eventually permitted. Caught in the midst of their reorganization and modernization efforts when Operation Barbarossa began on 22 June 1941, the Soviets paid a heavy price when overrun by the Germans. Compounding the problems already plaguing the military in 1941, was Stalin's ominous mistrust of others. As Operation Barbarossa began Joseph Stalin was single-handedly making decisions on important government and military matters,[17] frequently countermanding orders issued by Military District Commanders to rectify deficiencies in readiness. Perhaps most disturbing of all were Stalin's threats of execution for incompetence or disloyalty, threats which were in fact carried out following the initial setbacks of Operation Barbarossa. With hindsight, it is intuitively evident that the problems enumerated above, when added together, were a catastrophic liability for the Red Army at the moment the German forces

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[17] History of the Great Patriotic War of the Soviet Union 1941-1945 (Moscow, 1961), p.11.

unleashed the aggressive, mobile, surprise attack opening Operation Barbarossa.

The officer corps of the Red Army was in an uncomfortable position at best, but what about the soldiers who carried out the orders of the Army's leaders? The Soviet soldier was a simple, uncomplicated individual, largely recruited from a rural, peasant background. Although independent thought and action were conspicuously absent from his military make-up, he displayed superior determination and adaptability. Soldiers in the Red Army required few necessities and many actually enjoyed a better existence in the army during the Great Patriotic War than in their past civilian life. The closeness to nature, characteristic of peasant life, enabled the Soviet soldier of peasant background to choose, almost unconsciously, the appropriate and militarily correct course of action when his existence was threatened.[18] From his experience on the Russian front, Generalleutnant Sintzenrich, formerly Commander of the 132d Infantry Division, has made this particularly cogent observation:

> "All these traits are rooted deeply in the Russian soldier; military training could teach them to a man

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[18] Generalleutnant a.D. Sintzenich, 132d Infantry Division-Geomilitary Description of the Western Ukraine-the Russian Soldier (Unpublished Foreign Military Studies Typescript # D-103 Historical Division USEUCOM, 1947), p.6.

matured in a higher civilization only laboriously and with difficulty.

"In all operations and movements within a unit, he is, however, greatly dependent on the leadership of those above him. Independent thinking, except in situations involving his adaptability to natural surroundings,..., is not in his nature."[19]

Although there were cases of entire Red Army units surrendering or deserting during the first two months of Operation Barbarossa, there were also reports of units fighting until the last man with fanatical determination.

One must also examine the character of the Russian land itself to appreciate fully the operational situation as it existed in 1941. The generalization that Russia was a large, remote, underdeveloped country is not sufficient. One need only glance at a map of Russia to grasp its immensity and appreciate the number of waterways, from intermittent streams to great rivers, which traverse Russia in every direction. Such a host of waterways required a multitude of bridges whose real importance became more apparent in time of war. Considering the size of Russia, the underdeveloped condition of the Soviet motor vehicle industry in 1941, and the extremely primitive road system, the Russian railroad presented the only means with which to accomplish the strategic maneuvers required in that vast country against an opponent as mobile as the German Army.

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[19] Ibid., pp.7-8.

Soviet national communications in 1941 consisted of a shallow set of communications systems which largely converged on the Russian capital, Moscow. Captain Charles von Luttichau,[20] an intelligence and later signal officer with the German Army on the Eastern Front, described Soviet communications quite succintly as "very primitive but adequate for its purpose."[21] Operation Barbarossa, however, served Soviet purposes very poorly. The official Soviet History of the Great Patriotic War, with remarkable candor, simply described Soviet communications on the first day of Operation Barbarossa as improperly organized.[22] The Soviets had designed their communications on a preconceived concept of the type of conflict that would develop on the western frontier. This concept seems to be one in which the Soviets felt they would have sufficient forces and equipment to check an attack conducted at the pace of military operations they had experienced in the past, and to seize the offensive quickly themselves. Operation Barbarossa, with its opening swift, deep breakthroughs was radically inconsistent with this notion and the Soviets began to disintegrate within the opening hours of the attack.

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[20] Capt. von Luttichau has also completed extensive research into the early part of the war between Germany and Russia and has authored the first volume in the U.S. Army series on the Eastern Front.

[21] Interview, Charles von Luttichau, Washington, 1980.

[22] The Great Patriotic War, p.11.

A distinction must be drawn between the individual communication systems, for example the Military or Party communications systems, and the various communication means, for example telephones and radios, employed in the overall national communications network of the Soviet Union. The five principal communications systems which served the Soviet Union during part or all of Operation Barbarossa have been identified as follows:

The Military Communications System

The Communist Party Communications System

The Commissariat of State Security (NKGB) Communications System

The Commissariat of Interior Communications System

The Local Government Officials Communications System.

These five systems vary from the Military System which is precisely definable by the hardware it employed, to the Local Officials System which is only loosely definable by the users it serviced. The various means of communicating over the five communications systems are given in Figure I. Both the communications systems and means spanned the communication requirements spectrum from the strategic to the tactical levels as Figure II graphically portrays for the case of the Military Communication System. When examining Figure II, the reader must appreciate the fact that no distinct break in the communication means was defined in the Military Communication System between the Army and Corps levels, but rather a transition existed from those means

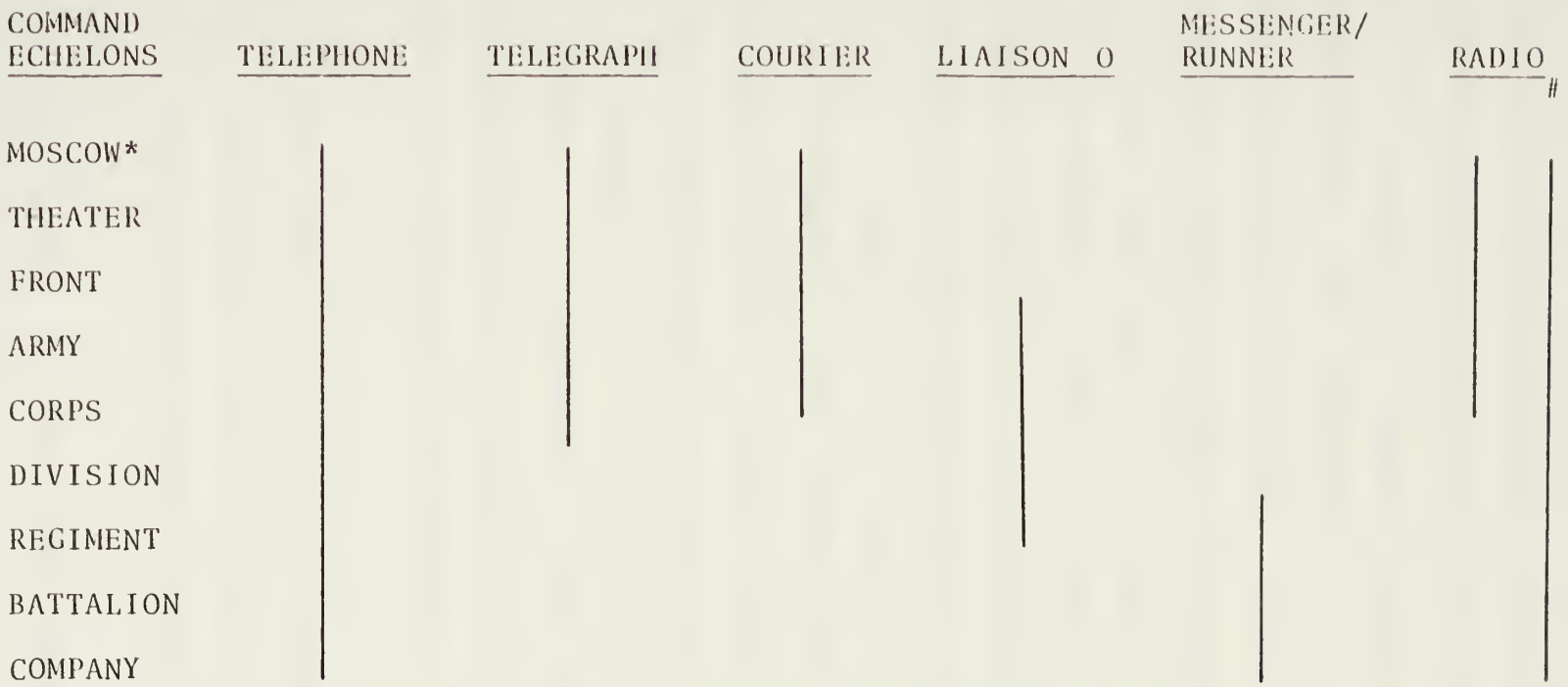
Figure I

Communications Means Comprising
The Various Communications Systems
(Including communications facilities within each means)

Telephone:	State telephone lines Military telephone lines Party telephone lines Railroad telephone lines Telephone Exchanges Civilian (in State Post Office) Military
Telegraph:	Booster Stations State telegraph lines Military telegraph lines
Personal Messengers:	Couriers State (ground and air) Military (ground and air) Liaison Officers Messengers Motorcycle Vehicular Runners
Radio:	State radio facilities State Security (NKGB) radio facilities Special High Command radio facilities Military field radios Military nodes of communications

Figure 11

MEANS OF COMMUNICATIONS EMPLOYED IN THE MILITARY COMMUNICATIONS SYSTEM



* INDICATES, COLLECTIVELY, SUCH ORGANIZATIONS AS THE SUPREME COMMANDER, STATE DEFENSE COMMITTE, STAVKA, DEFENSE COMMISSARIAT, AND THE GENERAL STAFF.

\# DENOTES ARMOR UNITS

employed at the strategic level to those employed at the tactical level. One should bear in mind it was unlikely that all the means of communications would be used at one time at any one level of command but that different levels of command very probably did employ the same communication means simultaneously. The telephone was the primary means of communication employed by all the various communication systems. The Post Office managed state telephone communications in Soviet Russia and the location of telephone exchanges in the basement of postal buildings indicates a certain degree of hardening of these communication facilities.[23] Concerning radio communications it can be said that they were of lesser priority than telephonic communications. High-frequency radio transmissions, however, were important communications at strategic levels over the extremely long distances involved in the Soviet Union. Although no one communications system can be cited as superior to all the others, it is important to note that all five systems were available to the national leaders who used the system which best served their requirements at any given time.[24]

With the exception of the Military Communications Systems, little information is known of the various communications systems comprising the National Communication Network.

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[23]Interview, Charles von Luttichau, and Detmar Finke, Washington, 1980.

[24]Interview, Aleksandr Nekrich, Cambridge, 1980.

The Communist Party in the Soviet Union operated its own communication system in 1941, utilizing telephonic communications on the Party's own telephone lines.[25] Although few specifics are known, it can be stated with confidence that the People's Commissariat for State Security, the state intelligence organization (NKGB), operated its own system of communications within the USSR[26] and utilized radio transmission to communicate with its spy networks in foreign countries. The Interior Commissariat, which controlled the border guards in the west, also operated its own communications system for direct contact between the border and the Ministry in Moscow. Except for the exchange of information which occurred at the Ministry level, the Interior Commissariat Communication System interfaced with the Defense Commissariat Communication System only at the Military District level.[27] The Local Official Communication System was the least complete of all the communication systems and probably relied on conversations conducted in person and on the state telephone network, and messages sent on the telegraph system.

The Military Communication System (see Figure II) was designed to operate under the rigors of war and was, by its very nature, more complex than the other four systems

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[25] Interview, von Luttichau.

[26] Interview, Nekrich.

[27] Interview, von Luttichau.

previously discussed. The civilian telephone landlines and cables operated by the People's Commissariat for Communications provided the basis around which the Military Communication System functioned.[28] Even the armored units connected to the civilian cables, as the following statement from John Erickson's, The Road to Stalingrad, clearly indicates,

> "The signals of the 22nd Tank Division, for example, were operated through the local post office, where the formation plugged into the civilian telephone network and telegraph service (22 Tk. Div. record, 7.6.1941: captured document)."[29]

Personal communications were extremely important in the military and were probably the primary means of communication at the company, and perhaps even battalion, level. Couriers and liaison officers replaced messengers in the personal communications role at the regimental level and higher. Radios were only employed above the division level except in armor units where radios were common at all levels.[30] It is very likely that radio communication was the primary means of communication in armor units with personal and telephonic communications assuming secondary priority, although no evidence can be presented to support

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[28] Erickson, Stalingrad, p.22.

[29] Ibid., p.73.

[30] Interview, von Luttichau.

such a view.* Poor coordination of communications between the infantry and its supporting arms was a facet of the Soviet Military Communications System characteristic of infantry-air and infantry-artillery communications, although it must be said that the artillery forces had an excellent iternal communications set-up.

Due to a paucity of wireless sets and limited experience with wireless communication before the Great Patriotic War, many Red Army personnel were not familiar with radio communications and preferred to rely on the more familiar telephone.[31] Radio operators who were trained were extremely well trained and assigned to strategic commands, corps level and higher, while radio operators below the corps level where radios were only used in armor units (see Figure II) were typically poorly trained and limited in technical ability.[32] Only in the Leningrad Military District had the system of radio nets reached an effective degree of development by 22 June 1941 to make a significant contribution to the defense of the Soviet Union in the opening stages of

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[31] Alexander Werth, Russia at War (London, 1964), p.138.

[32] Interview, Nekrich.

*According to Richard Ogorkiewicz, Armoured Forces (New York, 1970), p.99 a Russian armored, or Tank Division consisted of two tank regiments, one motorized infantry regiment and an artillery regiment while a motorized division included two motorized infantry regiments, one tank regiment and an artillery regiment.

Barbarossa.[33] The communications section of a typical staff was known as the node of communications. An army level node of communications,* for example, was headed by the Army Signal Officer and usually included the communications equipment and operators, cryptographic personnel, representatives from the operations and intelligence staff sections, and political and state security personnel.[34] Special High Command Radio Communication Units, operating under the direction of the Signals Administration, existed to maintain contact between the General Staff in Moscow and the Fronts.[35]

No separate air signal service existed in the Soviet Air Force in 1941. The Army Signal Service supported the Air Force, as well as ground units, with wire and radio communications, and in the case of the Air Force, with a weather reporting system. Flying units had no signal units assigned to them nor did the area air commands, air divisions, or mobile air bases; however, communication personnel required by flying units were organic to those units. Wireless telegraphy and radio were the primary means of communications in the air forces, but a variety of other

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[33] Erickson, Stalingrad, p.72.

[34] Interview, Nekrich.

[35] Erickson, Stalingrad, p.73.

*The Army level node of communications communicated with the Front and Corps nodes of communications. When Corps were eliminated on 10 July 1941, the Army communicated directly with the divisions.

means such as wire, marking panels, visual and light signals, and flares and rockets were also utilized.[36] Separate radio networks existed for ground to air to ground, ground to ground, air traffic control and weather service communications. Although a variety of radio nets existed to support the Air Force, the signal communications services as a whole were poorly organized and the air signal network was not suited to the flexible conduct of air warfare.[37] Specific wave-lengths were not assigned to particular units in the Air Force, but rather a complete wave-band of frequencies was allotted to an army group area. The frequencies, and sometimes the call signs as well, were changed arbitrarily, frequently as often as twice in one day.[38] Only a few Soviet aircraft were equipped with radios in 1941. Aviation unit commanders were apparently able to communicate by radio from air to ground but were forced to more primitive, visual communications between aircraft in flight.

Radios were in short supply in the Soviet Air Force and of no better quality than those used by the ground forces. Only a few radio beacons existed in 1941 in Russia, and

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[36] Generalleutnant a.D. Walter Schwabedissen, The Russian Air Force in the Eyes of German Commanders (New York, 1960), p.31.

[37] Ibid., p.159.

[38] Ibid., p.154.

very few of these were used by the military.[39] Aircraft instruments, such as radio direction-finding equipment, were crude and obsolete and even the influx of superior American equipment failed to improve the situation because of a critical shortage of personnel able to operate the equipment. Harold Faber in Luftwaffe, a History offers a truly unique, descriptive account of Soviet airfield operations before the German attack.

> "Control towers were unheard of in Soviet ground organizations and radio and electrical apparatus were usually nonexistent. When units took off it was reminiscent of the old flying squadrons of World War I, which operated from primitive fields and communicated by a wave of the hand or a tip of the wings. Even normal field telephone equipment was absent from most Soviet airfields." [40]

Soviet communications equipment of 1941 was technically inferior to German and American equipment of that time. Lt.Col. Kamill Usfensky, an intelligence officer in the Red Army on the Eastern Front, considered the American field telephones provided the Soviets through the Lend-Lease Program as, in his words, "twice as good" as Russian phones then in use. The German communications equipment encountered by the Soviets during the course of Operation Barbarossa was so superior to similar Russian equipment in use, that the Soviets employed captured German radios and

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[39] Ibid., p.31.

[40] Harold Faber, Luftwaffe, a History (New York, 1978), p.233.

telephones whenever they were available.[41] The Soviets were habitually short of radio sets, operators, and repairmen. In fact on 22 June 1941 the 3rd Army under Lieutenant-General Kuznetsov, holding the right flank of the Western Military District at its junction with the Baltic Military District, had no radios in service to higher headquarters during the German attack.[42]

Varying degrees of sophistication existed in the cryptography employed by the Soviet forces in Operation Barbarossa. Only at strategic levels could the well-trained radio operators handle complicated ciphers [43] with assistance from cryptographic specialists while the tactical units were restricted to elementary ciphers and simple call signs due to the limited training of the communications operators.[44] German Army Group codebreakers were unable to crack the high level codes employed between Stavka and the Theater Commands but codes used below corps level, often the Caesar's Codes actually developed during the time of Caesar, proved relatively easy for the Germans to decipher.[45] In addition to formal ciphers, the Soviets used simple, easily deciphered,

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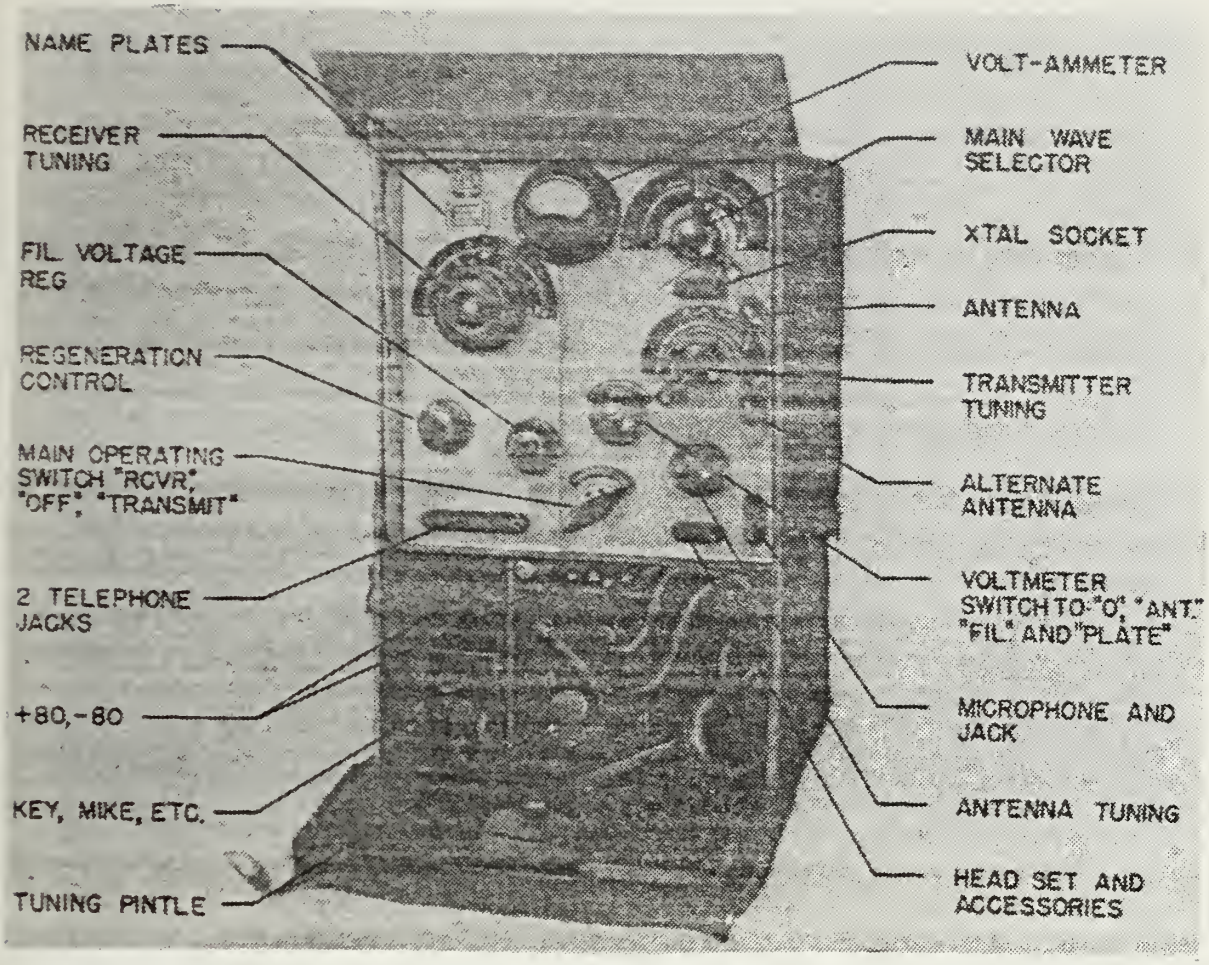
[41] Interview, Usfensky.

[42] Erickson, Stalingrad, p.119.

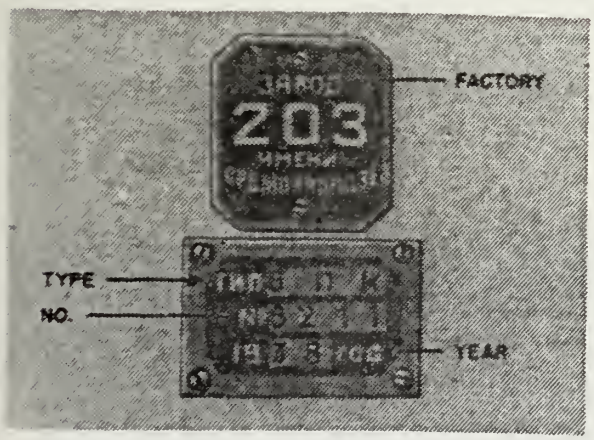
[43] General der Nachrichtentruppen Albert Praun, German Radio Intelligence (Unpublished Foreign Military Studies Typescript #P-038 Historical Division USEUCOM, 1950), p.94.

[44] Interview, Nekrich.

[45] Interview, von Luttichau.

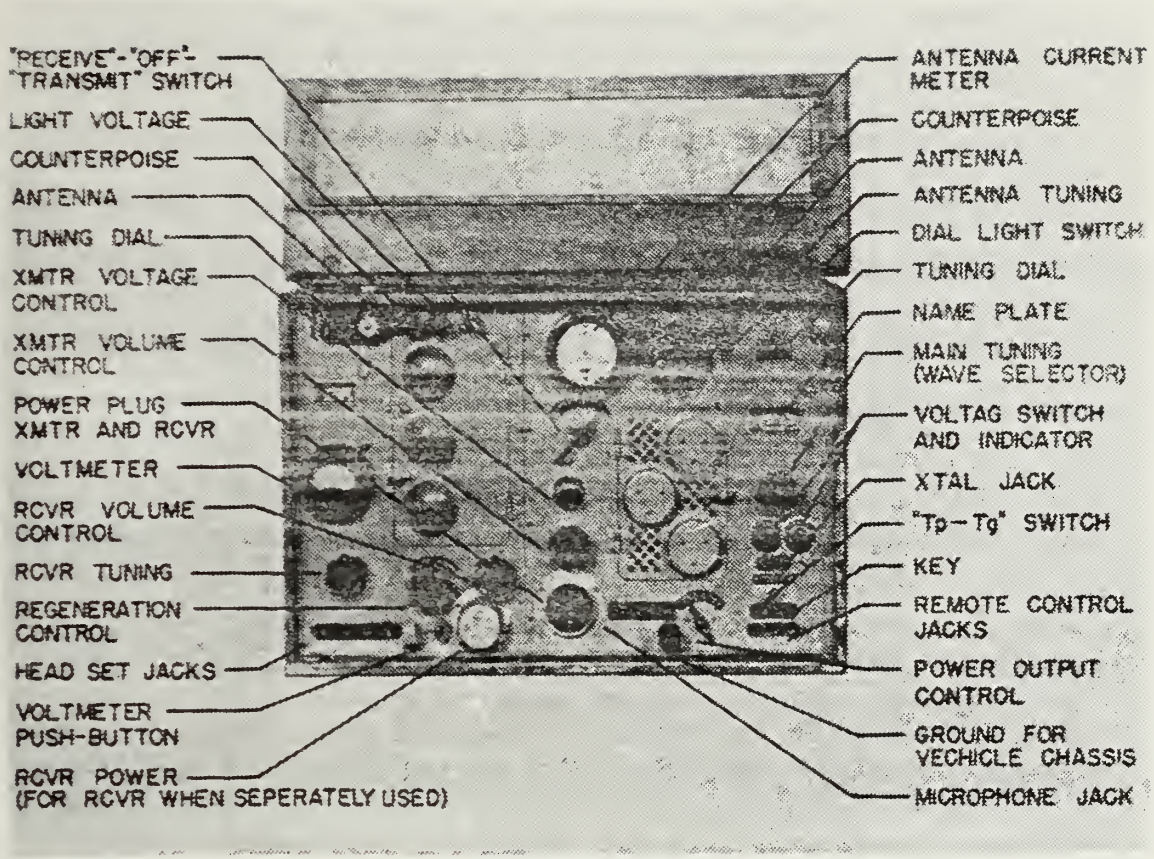


Transmitter-receiver 6-PK.



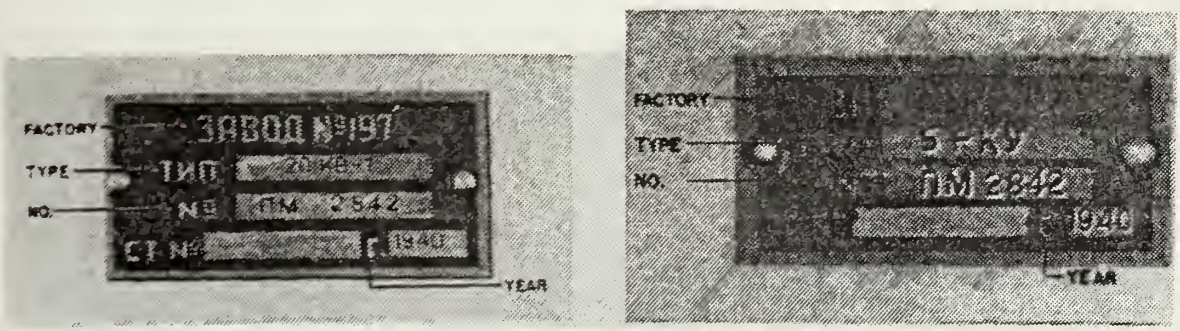
Nameplate for transmitter-receiver 6-PK.

The 6-PK was a pack-type transmitter-receiver used by the Red Army during Operation Barbarossa. This radio was poorly constructed, although the operating controls were reasonably accesable, and poorly designed for maintenance. The 6-PK transmitter-receiver was encased in a flimsy wood case, covered with canvas on the outside.



Transmitter-receiver 5-AK-1M.

The Soviet 5-AK-1M transmitter receiver was a relatively compact, vehicular mounted radio used by the Red Army during Operation Barbarossa. The 5-AK-1M transmitter-receiver weighed approximately 286 pounds and required over 36 feet of antenna to operate..



Nameplates for transmitter (left) and receiver (right) of 5-AK-1M.

word-substitution codewords in their tactical transmissions.[46] To facilitate their use, the codewords were usually written around the border of the unit operations map, which resulted in the capture of the codewords whenever a map was captured during Operation Barbarossa. There can be no provisions for the compromise of such an elementary system of codewords as employed by the Soviets and the use of this primitive codeword system caused a false sense of security in the communication means on which the codewords are employed.

The Soviet Command and Control (C^2) System, which conceptually can be considered a subset of the overall Soviet Command, Control, and Communication System, was a system unique to the Soviets, influenced heavily by the same preconceived notion of warfare in the west discussed earlier, as well as the people the system served and controlled. The C^2 system was effective under peacetime conditions but largely untested under the combat conditions for which it was supposedly designed. Apparently little thought, if any, had been given to the type of defensive situations which developed during Operation Barbarossa. In time of war it is often difficult to separate the national C^2

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[46] See Generaloberst Hellmuth Reinhardt, Small Unit Tactics (Unpublished Foreign Military Studies Typescript #P-060d Historical Division USEUCOM), Appendix III for a more complete discussion.

system from the military C^2 system, and actions taken by the Soviet Union during Operation Barbarossa effectively merged these two C^2 systems so that a discussion of the Soviet C^2 in general must include both systems.

National strategic leadership was undefined in the Soviet Union on 22 June 1941, a detail supported by the fact that there was no supreme command, supreme command headquarters facility, nor clearly discernable supreme commander.[47] As Marshal of the Soviet Union, V.D. Sokolovskii recounts:

> "...We had not worked out the problems of strategic leadership of the Armed Forces by the beginning of the war. As a result, leadership in the command of the armed forces was quite inadequate during the initial period of the war."[48]

As Commissiar of Defense Marshal Timonshenko was, in fact, the supreme commander but by sheer authority and intimidation Stalin, who, as previously indicated, was personally making all of the important military decisions,[49] was in actuality the supreme commander.[50] There was no adequate command facility, uniquely dedicated or designated, from which the supreme commander could effectively exercise command and control. Accounts of the Defense Ministry during the initial hours of Operation Barbarossa imparted to the author the distinct impression that Marshal

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[47] See Erickson, Stalingrad, p.114.

[48] Sokolovskii, Soviet Military Strategy, p.252.

[49] The Great Patriotic War, p.11.

[50] Erickson, Stalingrad, p.126.

Timoshenko, and his assistant General Zhukov, responded to the German attack from the desks in their offices, without the benefit of a facility befitting the true gravity of the situation.[51] The absence of an established set of procedures to designate and use the command facilities available at either the Moscow Military District or the Air Defence Command Headquarters in Moscow is further testimony of the inadequacy of Soviet Strategic C^2 on 22 June 1941.

The command structure was quickly modified on 23 June 1941 when the Central Committee of the Communist Party formed the Headquarters of the Supreme Command (Stavka) under the Defense Commissar, Marshal Timoshenko. One week later, on 30 June, the Central Committee, Supreme Soviet, and Soviet of the People's Commissars of the USSR created the State Defense Committe (GKO) with complete state and military power.[52] The GKO members were soon sitting as part of the Stavka and by 10 July the State Defense Committee had created three high commands (or theater level commands) to assist the Stavka exercise direct command of the troops. The high commands functioned in the field directly under the Stavka in Moscow by coordinating several fronts for the accomplishment of general strategic missions in specific

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[51] See Erickson, Stalingrad, pp.101-135 for an exceptionally detailed account of the initial hours of Operation Barbarossa.

[52] Sokolovskii, Soviet Military Strategy, pp.487-488.

geographical areas.[53] As Marshal Sokolovskii points out,

> "This decision of the State Defense Committe changed the Stavka of the High Command into the Stavka of the Supreme High Command under the direction of the Chairman of the State Committee of Defense...and in August it was placed under the direction of the Supreme Commander of the Armed Forces of the Soviet Union (Joseph Stalin)...
>
> During the entire Great Patriotic War, the Stavka was the highest agency of strategic command for the Armed Forces. It was a collegial agency. All the most important decisions were made after the Stavka discussed them with the front commands, the commanders-in-chief of the branches of the Armed Forces, the service commanders, as well as with other individuals concerned."[54]

Following the reorganizations just described, the Stavka was composed of select members of the Politburo, the Chief of the General Headquarters, and individual higher command personnel.[55] By August 1941, Joseph Stalin's consolidation of power was complete and he had refined centralization to a new degree as Chairman of the State Defense Committee, Defense Commissar (replacing Timoshenko who had been assigned to a theater command), and Supreme Commander.[56]

Changes were also made in the organization of the military as Operation Barbarossa progressed. As stated previously, portions of the military organization were in the process of reorganization on 22 June 1941 to bring the Red

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[53] Ibid., p.489.

[54] Ibid.

[55] Ibid.

[56] Erickson, Stalingrad, p.180.

Army up to date with the more modern concepts of warfare employed by the Germans. The incomplete reorganization of Soviet armor forces resulted in large, unwieldy formations, impossible to control.[57] The corps level, an integral part of the chain of command on 22 June, was eliminated by 10 July because initial combat losses aggrevated the already existing shortage of trained officers. Figure III illustrates the chain of command on 22 June 1941 and Figures III and IV together highlight the changes that occurred during the first seven weeks of Operation Barbarossa in the national and military command structures. The military districts indicated in Figure III were peacetime administrative organizations for the mobilization of reserves which transitioned into fronts, essentially army groups, in time of war. The military districts along the western frontier on the eve of the German attack are provided in Figure V. As mentioned earlier, three high commands (theaters) were formed on 10 July to facilitate command of the troops by the Stavka and were designated essentially by their area of responsibility as the Northwest, West and Southwest Commands.[58]

The Soviet system of command was clumsy and inflexible during the early days of Operation Barbarossa[59] when

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[57] Interview, von Luttichau.

[58] Sokolovskii, Soviet Military Strategy, p.489.

[59] Generalmajor Wilhelm Peterson, Campaign Against Russia (Employment of Second Army Engineers) (Foreign Military Studies Typescript #D-018 Historical Division USEUCOM, 1947), p.8.

Figure III

Comparison of the Military Chain of Command

	22 June 1941	10 July 1941
Strategy Levels	Supreme Commander	Supreme Commander
		State Defense Committee (GKO)[1]
		Stavka[2]
	Commissar of Defense	Commissar of Defense
		Theater[3]
	Military District	Front[4]
	Army	Army
Tactical Levels	Corps[5]	
	Division	Division
	Regiment	Regiment
	Battalion	Battalion
	Company	Company

NOTES:

1. Formed 30 June 1941 with complete state and military powers to provide the leadership organ by which national decisions could be made and coordinated.

2. Headquarters of the Supreme Command (Stavka) formed 23 June 1941 under the Defense Commissar, placed under GKO on 10 July. The Stavka provided the General Headquarters lacking on 22 June with which Moscow could direct the military.

3. Formed 10 July 1941 to facilitate control of the fighting units by Stavka.

4. Military Districts transformed into Fronts during the first ten days of Operation Barbarossa.

5. Eliminated by 10 July 1941 due to a shortage of trained officers.

Figure IV

Comparison of the Military Chain of Command

	10 July 1941	10 August 1941
Strategic Levels	Supreme Commander	Supreme Commander
	GKO	Stavka[1]
	Stavka	GKO
	Commissar of Defense	Commissar of Defense
	Theater	Theater
	Front	Front
	Army	Army
Tactical Levels	Division	Division
	Regiment	Regiment
	Battalion	Battalion
	Company	Company

Note:

1. On 10 August Joseph Stalin as Supreme Commander approved a GKO recommendation which changed the Stavka from simply the General Headquarters into the Stavka of the Supreme Command.

Figure V

Russo-German Frontier Military Districts

Leningrad Military District: 14th, 7th, 23d Soviet Armies

sector: from the Barents Sea to the Gulf of Finland

Baltic (Special) Military District: 8th, 11th Soviet Armies

sector: 300 kilometers of frontier with East Prussia

Western (Special) Military District: 3rd, 10th, 4th Soviet Armies

sector: 470 kilometers of frontier, Belorussia

Kiev (Special) Military District: 5th, 6th, 26th, 12th Soviet Armies

sector: 865 kilometers of frontier, Ukraine (from Vlodava to Lipkany)

Odessa Military District: 9th Soviet Army (administrative only)

sector: from Lipkang to Odessa (defense of the Crimea assigned to independent rifle corps)

Note: According to Erickson, Stalingrad, p.71 the Special Military Districts were operational groupings capable of operations for a limited time without mobilization of additional reserves unlike the other Military Districts which were largely administrative organizations to facilitate reserve mobilization.

Information for this figure was derived from Erickson, Stalingrad, pp.68-69.

unexpected situations precluded quick response. Geographical restraints imposed by the great distances between strategic locations and physical constraints of the Russian transportation system limited response options by making rapid redeployment and large-scale movement improbable.[60] The Soviet military and political leadership at the strategic level lacked a realistic view of the actual situation since it had underestimated the German potential while overestimating the Soviet potential.[61] The influences just cited combined to interfere with innovative, original responses to German offensive maneuvers and caused the selection of preconceived responses or responses patterned in strict accord with established doctrine. At the tactical level, officers and NCO's were reluctant to exercise initiative partly because they feared punishment for failures[62] while in situations when initiative was displayed the highly centralized Soviet command structure facilitated higher authority review and reversal of actions perceived as inappropriate. The ordinary soldier simply followed the example set by his superiors and displayed a decided lack of initiative as well. Many commanders who had been quickly advanced after the purges lacked the experience required

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[60] Erickson, Stalingrad, p.85.

[61] Sokolovskii, Soviet Military Strategy, p.249.

[62] Reinhardt, Small Unit Tactics, Appendix I, p.11.

for their positions[63] and for some of these commanders war, such as it was in the first days of Operation Barbarossa, was beyond their comprehension.[64] The lower command echelons in the Red Army characteristically suffered from poor leadership since the best leaders had risen to higher commands.[65] The Soviet Air Force command appeared to German commanders as awkward, old-fashioned, stereo-typed, and at times hampered by political party control.[66] Although the communist party activities in the army may have exerted detrimental influences similar to those experienced in the air force, in at least one respect the party strengthened military command by adding robustness to the command structure, since the political officer was always available to replace the commander should he be removed unexpectedly by enemy action during combat.[67]

Orders issued by the Soviets during the Great Patriotic War were generally clear[68] and, at least on the tactical level, simple.[69] Due to the general confusion pervading the

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[63] The Great Patriotic War, p.29.

[64] Erickson, Stalingrad, p.123.

[65] Interview, von Luttichau.

[66] Schwabedissen, The Russian Air Force, p.12.

[67] Interview, von Luttichau and Finke.

[68] Interview, von Luttichau.

[69] Reinhardt, Small Unit Tactics, Appendix I, p.10.

Soviet Union during the initial weeks of Operation Barbarossa, orders issued from Moscow were very confusing[70] and unrealistic until the Soviets gained an understanding of the true state of affairs.[71] As Supreme Commander, Joseph Stalin issued the most important orders to his front commanders by summoning them to the Stavka or sending Stavka representatives to the fronts. Whether Stalin personally issued the orders himself or simply caused them to be issued in his presence is unclear but the important point is that critical strategic orders were indeed issued in person, and not by other means such as couriers or electronic transmissions.[72] Reports from the fronts to Moscow were likewise presented in person[73] and during the first few days of the war, before the leaders in Moscow clearly understood the Soviet position, the Stavka sent representatives to the fronts to determine the true situation and to assist the front commanders respond to the enemy advances.

Centralization was a key element in the Soviet Command and Control System and was a positive force in mobilizing the country and the military once the Soviets recovered from the initial devastating setbacks of Operation Barbarossa. During June and July 1941, however, the highly

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[70] Interview, Nekrich.

[71] Erickson, Stalingrad, pp.101-135.

[72] Sokolovskii, Soviet Military Strategy, p.492.

[73] Ibid.

centralized Soviet C^2 System adversely affected the Soviet ability to respond quickly and effectively.[74] As perhaps the most dire example of the detrimental influences of the highly centralized Soviet C^2 System consider that after the first two days of war, Stalin became inaccessable when he 'locked himself in his quarters' for several days (at least three)[75] so that at precisely the time the Soviet Union required its most inspired leadership, when the very existence of the Soviet Union was most seriously challenged, the key figure in the Soviet C^2 System was not available. During the first few days of the attack the highly centralized command system also required commanders in the field to await orders from Moscow which arrived late, if at all, and were quite unrealistic.[76] Field commanders, in retrospect, were in a better position to make their own decisions if for no other reason than the precious time that could be saved by eliminating additional communications channels. As the war progressed, the Stavka by-passed the fronts whenever the situation required and communicated directly with the various armies, although the fronts were always informed of the orders issued or information transmitted.[77]

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[74] Interview, Nekrich.

[75] Erickson, Stalingrad, p.139.

[76] See Nekrich, 22 June 1941, p.220 for an account of a telephone conversation on 22 June between Marshal Timoshenko, Defense Commissar, and General Boldin, Deputy Commander of the Western Special Military District.

[77] Sokolovskii, Soviet Military Strategy, p.493.

Considering that each front had evolved from a military district which had been basically an administrative grouping of armies, it is not surprising that the front was occasionally by-passed to achieve operational expediency.

The Soviet leadership had prepared mobilization and defense plans but they were either incomplete or based on the erroneous concept of war in the west previously discussed. Plans for the economic mobilization of the war industries[78] were ineffective and incomplete and crises management techniques were required to supplement them.[79] The 1941 defense plan for the west was predicated on the ability of the border units and frontier military districts to provide sufficient time for the mobilization of the main forces in the event of surprise attack.[80] The adequacy of the 1941 defense plan certainly appears questionable now, but what was equally important as the adequacy of any defense plan in 1941 was the level of readiness of those units designated to implement that plan. Marshal of the Soviet Union R. Ya. Malinovskiy, a corps commander in the 18th Army during Operation Barbarossa has written that,

> "Requests from some district troop commanders for authority to bring their troops to combat readiness and move them closer to the frontier were personally turned down by J.V. Stalin. The troops continued to be trained in peacetime fashion: the artillery of infantry divisions was in artillery camps and ranges, antiaircraft weapons

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[78] Nekrich, 22 June 1941, p.195.

[79] Erickson, Stalingrad, p.138.

[80] Nekrich, 22 June 1941, p.68.

on antiaircraft ranges, and sapper units in engineer camps, and the 'naked' infantry regiments of divisions were located separately in their camps."[81]

The point is that despite massive outlays of men and equipment along the frontier, readiness levels required in the 1941 defense plan were not sufficient to optimize the probability of success of that plan against a surprise attack. The Soviet Union was continually improving its border defenses and individual commanders were, on their own initiative, taking measures to improve their unit readiness but when these individual actions were discovered in Moscow they frequently were countermanded. For example, Colonel-General Kuznetsov, Commander of the Baltic Special Military District, on his own initiative instituted a partial blackout of the naval bases and airfields in his district to reduce his vulnerability to possible enemy intelligence activity. Colonel-General Voronov, Commander of the Anti-Air Defense Command (PVO), learned of this precaution and recommended it to the General Staff for adoption elsewhere, but, instead, Moscow specifically countermanded Kuznetsov's order.[82]

The facilities from which, and with which, Red Army Commanders exercised C^3 in the field were austere as the following account of an army headquarters on 22 June 1941 clearly indicates. 10th Army Headquarters, which at 2100 on the 22nd was located six miles southwest of Bialystok,

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[81]See Nekrich, 22 June 1941, p.198.

[82]See Erickson, Stalingrad, p.83.

consisted of only two tents, wooden tables and stools, a telephone and a radio truck.[83] This headquarters was apparently the 10th Army's advance command post (CP) which at the army level consisted of from ten to fifteen men and included the following: the node of communications; cryptographic, operations, and intelligence personnel; political and state security personnel, liaison officers; and the commander. Further back from the forward edge of the battle area (FEBA) was the first echelon of the CP, comprising the main staff effort under the chief of staff. Still further behind the FEBA was the rear element of the CP which handled logistical matters.[84] Command posts in cities and villages were often located in school buildings since they were generally the newest brick facilities with sufficient interior space to accommodate a staff operation. Factories and administration buildings on collective farms were also suitable locations for CP's, in the absence of schools, but private dwellings were unsatisfactory due to the prevalent problem of pest infestation in Russian homes.[85]

Each headquarters, down to and including company level on the border, was issued sealed letters containing special orders for specific emergencies.[86] It is apparently these

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[83] Ibid., p.129.

[84] Interview, Nekrich.

[85] Interview, von Luttichau.

[86] Interview, Nekrich.

same sealed letters to which John Erickson refers when he recounts the opening of 'Red Packets', containing mobilization plans and cover plans, between 0430 and 0500 on the 22nd.[87] These letters, or packets, ostensibly contained orders to be opened by the commander under very specific circumstances, although it is unclear from all accounts whether the letters were to be opened only upon direction of higher authority or upon the initiative of the individual commander.

Soviet maps used during Operation Barbarossa were adequate for intended purposes but were quite primitive by comparison with German maps of the same time.[88] There was apparently no system which allowed continuous use of maps by the Soviets, except for those portions of the map previously unused, since marks placed on the maps by the users were indelible. Obvious efforts to remove marks from several maps examined had resulted in the removal of printed features as well and had rendered that portion of the map unserviceable. Unlike their German opponents, the Soviets had no mobile map production facilities to service the armed forces but relied on maps printed in the rear area,

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[87] See Erickson, Stalingrad, pp.119 and 121.

[88] The author examined several Russian maps captured by the Germans and compared them to German maps of the same area used in Operation Barbarossa to arrive at the conclusions expressed herein.

probably Moscow, which had to be delivered to the various units.

Intelligence information was a critical input to the Soviet system of Command and Control during Operation Barbarossa and the surprise nature of that operation made the early warning phase of the intelligence function even more important than it had been previously. The Soviet Union had an excellent network of spies in foreign countries, especially Germany and Japan, relaying very accurate, timely information to Moscow. Although the United States and Great Britain both warned the Soviets of German intentions regarding Operation Barbarossa the Soviet leaders attached low esteem to these warnings since the Soviets considered these warnings as efforts to undermine the relationship established by the Soviet Union and Germany through such agreements as the 1939 Nonaggression Pact. German soldiers defecting to the Soviet Union only hours before the attack relayed very accurate details of the impending attack[89] but the Soviet leadership, in particular Stalin, totally discounted the possibility of a surprise attack of the dimensions of Operation Barbarossa and considered such reports as attempts by the Germans to provoke Soviet action.

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[89] See Erickson, Stalingrad, p.105. One deserter, Alfred Liskow, crossing the lines at 2100 on 21 June 1941, reportedly stated the attack would commence at 0400 and that German guns were in firing positions. In response to a report from a deserter Stalin, possible referring to Liskow, ordered him to be shot for his disinformation.

The individuals who provided intelligence information to Stalin, such as the Military Intelligence (GRU) Chief Marshal Golikov, while not intentionally misinforming Stalin, evidently were well aware of Stalin's frame of mind before their meetings and presented intelligence in the manner least irritating to their leader.[90] Presentation of intelligence in such a fashion to Stalin, who shared the Soviet preconceived notion of the type of war which might develop with Germany, certainly detracted from the impact of that intelligence.

Several aspects of the Soviet intelligence system existing on 22 June were inadequate and deserve special mention to provide a better general appreciation of Soviet C^3 capabilities and limitations during Operation Barbarossa. Although the Soviet Air Force possessed operational reconnaissance aircraft very few, if any, were located along the frontier. Instead, fighter and attack planes designed for other specialized missions were employed in a reconnaissance role. When air reconnaissance did produce valuable intelligence, the Soviet Air Force system of processing the information and inaugurating a response was so poor that usually little effect was derived from air reconnaissance.[91] The air raid warning system was so poorly organized, even by Soviet standards, that fighter planes launched in response

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[90] Interview, Nekrich.

[91] Faber, Luftwaffe, pp.228 and 231.

to warnings from the system usually arrived too late to provide adequate overhead cover for the Soviet forces.[92] The air defense forces (PVO) control system performed unsatisfatorily and only a force reorganization and complete new air defense system could provide proper air defense in 1941.[93] Representative of Soviet intelligence information during Operation Barbarossa is the complaint of General Tikhamirov, chief of the operations section of the North-West Front, that the intelligence distributed to his front from Moscow in early July regarding the German forces assaulting his area of responsibility was too general and inaccurate to be of value.

Immediately preceding and during the initial attack of Operation Barbarossa, the Soviet border provided a particularly important early warning capability. The 1939 Non-aggression Pact had apparently diminished the urgency for a quick, thorough completion of the facilities along the new Soviet-German border and those facilities were incomplete at the time of the German attack. The new Soviet border, resulting from the division of Poland, extended for almost 1200 miles from the Baltic Sea at the border of East Prussia and Lithuania, through Poland, along the eastern borders of Czechoslovakia, Hungary, Rumania, and Bulgaria to the Black Sea. Approximately 700 of these 1200 miles bordered German

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[92] The Great Patriotic War, p.50.

[93] Sokolovskii, Soviet Military Strategy, p.265.

occupied territory. The border itself and the border units in the forward portion of the frontier region were the responsibility of the Interior Commissariat. No less than ten armies of the Defense Commissariat were located in the frontier military districts, listed in Figure V, and added depth to the border defense by positioning units behind the border up to 300, and in some cases 600, kilometers. These forces were not positioned in accordance with any systematic plan of defense[94] since there was no means of rapid deployment available. Supply points were close to the border itself and frequently located a considerable distance from the units and equipment they served.[95] Although the Red Army was indeed very large and conducting active training in the border military districts during June 1941, it was none-the-less in a peacetime posture with artillery pieces located separately from the stored ammunition and tank units located separately from their ammunition and fuel. The road network to support the border, so critical to the Soviet plan to reinforce the border, was incomplete on 22 June 1941.[96]

The sophisticated electronic sensors of today are quite different from the elemental sensors employed on the Soviet

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[94]Basil Collier, The Second World War: A Military History (New York, 1967), p.201.

[95]Sokolovskii, Soviet Military Strategy, p.370.

[96]Interview, von Luttichau.

borders in 1941. There was no radar available on the border: instead, elementary sensors such as police dogs and humans were used.[97] Patrolling was employed on the Soviet side of the border but apparently very little, if any, patrol activity crossed the border, although local civilian inhabitants visiting on the German side were undoubtedly questioned concerning their observations of German forces and activity.[98] The border itself was a barrier consisting of a barbed wire apron with a variety of primitive alarm signals. Behind the initial apron of wire was a strip of cleared, raked earth probably less than fifty yards in width to highlight footprints.[99] Listening posts were located at regular intervals[100] and wooden three-man guard towers about twenty-five yards high were erected approximately every 500 yards with telephonic and visual communications between the towers. Patrols with guard dogs

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[97] Ibid.

[98] Interview, Nekrich.

[99] Apparently the width of this strip varied with the location of the border. For an excellent description of the border, along the Bug River in Poland, facing Army Group Center see Generalleutnant Curt Cano, German Preparations for the Attack on Russia (Unpublished Foreign Military Studies Typescript #D-247 Historical Division USEUCOM, 1947). See Generalleutnant Hans Bergen, Part Played by the 187th Infantry Regiment in the 87th Infantry Division Attack at the Beginning of the Russian Campaign on 22 June 1941 (Unpublished Foreign Military Studies Typescript #D-074 Historical Division USEUCOM, 1947), for an account of the border in East Prussia.

[100] Paul Leverkeuhn, German Military Intelligence (London, 1954), pp.156-157.

reconnoitered between the towers.[101] Excellent field fortifications extended six to eight kilometers beyond the barrier[102] with the defensive facilities manned by squads or companies.[103] Some new bunkers and artillery positions in this belt of defensive positions were still under construction and possibly unmanned during June 1941.[104] Behind the border was a security belt of approximately twenty miles from which inhabitants of certain areas were removed while in other areas they were allowed to remain but forbidden to shelter strangers.[105]

As the battle raged eastward, the border was no longer a significant intelligence source and the military relied on such intelligence gathering means as ground patrolling, air reconnaissance, and radio direction finding.[106] The military probably also received information from less conventional sources such as civilian refugees and military stragglers fleeing from behind enemy lines. There are accounts of refugees actually seeking German units,

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[101] Bergen, 187th Infantry Regiment, p.6.

[102] Interview, von Luttichau.

[103] Cano, German Preparations, p.4.

[104] Bergen, 187th Infantry Regiment, p.6.

[105] Leverkeuhn, German Military Intelligence, p.156.

[106] General der Nachrichtentruppen Albert Praun, Signal Communications in the East (Unpublished Foreign Military Study Typescript #P-132 Historical Division USEUCOM, 1954), p.98.



The Soviet Border on 15 June 1941
Southeast of Kalety facing East Prussia.

(Photo: Bundesarchiv)

ostensibly for food, but in reality to gather intelligence.[107] The government in Moscow, while receiving intelligence from the military, continued to receive information from other nations and agents in other countries, and undoubtedly received valuable information from local civilian officials who suddenly found themselves behind the advancing German Armies.

The Soviet Transportation System in 1941, consisting essentially of the railroad and road network, was adequate for the needs of the Soviet Union while a sparsely settled, industrially developing nation. It was quite inadequate to support large, modern military forces[108] and was considered the weakest factor in the Soviet military potential.[109] The Soviet Union was traversed in literally all directions by innumerable waterways of varying dimensions but military operations during Operation Barbarossa were not significantly affected by any water transportation system except that an impressive number of bridges was necessitated to maintain transportation continuity across the many rivers and streams. Since the German forces were very dependent on extremely quick, mobile forces and the Soviets had to rapidly maneuver large forces to parry German thrusts, these

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[107] Ibid., p.12.

[108] Abberger, Roads and Railroads in Russia, p.2.

[109] Schwabedissen, The Russian Air Force, p.50.

bridges quickly assumed paramount importance as a most critical element in the transportation system to ensure the accomplishment of required military movements via road and rail in the short periods of time dictated. Appendix B is an in-depth analysis of the Soviet Transportation System in 1941 by Generalleutnant Max Bork, a transportation expert with the German Army, and is the best account available of the Soviet Transportation System in relation to Operation Barbarossa.

Although the railroad was the most reliable transportation system in the Soviet Union and provided the most practical means of accomplishing the massive, relatively rapid, strategic force maneuvers required of the Soviets in response to the German attack, the Soviet railroad was not as extensively developed as railroads in other European countries. In 1938, the latest year prior to 1941 for which statistics have been discovered, the Soviet Union as a whole had only .65 miles of rail per 100 square miles with 1.8 miles per 100 square miles in European Russia, compared to the German railroad average of 20 miles per 100 square miles. There were only 3.3 miles of track per 10,000 inhabitants in Russia, where the railroad was concentrated most heavily around the industrial areas of the Donets Basin, Moscow, and Leningrad, but Germany boasted 5.8 miles of track per 10,000 inhabitants. Signalling and safety devices were primitive compared with railroads in other countries and Russian track beds were constructed of sand and gravel instead of

crush-rock ballast used elsewhere due to a scarcity of rock. The standard railroad guage in Europe was four feet, eight and one-half inches but the Russian railroad guage was five feet which allowed more loading space per car. There were no double-track railroad bridges in Russia; instead single-track spans separated by 50 to 100 yards were constructed. Some of these bridges were temporary spans constructed during World War I which would have been considered quite unsafe anywhere but in Russia.[110]

The Soviet railroad assumes even greater importance when compared to the shallow system of roads in Russia in 1941. The road network satisfied the relatively weak demands of peactime traffic but failed to meet the requirements of modern warfare.[111] The Red Army did use motor vehicles for transportation but much of its transport requirements were satisfied by horse-drawn means. Paved roads were considerably different from what is common in America today. Concrete was not used to construct roads although cobblestone and asphalt-like materials were used but roads were paved only in sections, if at all. Except in urban areas, paved roads were so rare as to be specifically mentioned in writings about Operation Barbarossa and only four all-weather, hard-surfaced roads have been identified in western

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[110] Generalleutnant Max Bork, Comments on Russian Railroads and Highways (Unpublished Foreign Military Studies Typescript #T-7 Historical Division USEUCOM, 1953), pp.2-7.

[111] Abberger, Roads and Railroads in Russia, p.2.

Russia during Barbarossa. The main roads were broad, hard-rolled and quite satisfactory, although dusty in dry weather. They became absolutely bottom-less after rain and snow when vehicles would widen the roads by driving around untrafficable areas.[112] In many German corps, and sometimes entire army, areas, there was not a single hard-surfaced road.[113] In the entire Army Group North area, for example, there were only two all-weather roads capable of sustaining heavy traffic while the other roads were weather dependent.[114] In the opinion of Generalleutnant Bork, there was only one road in European Russia constructed in accordance with western European standards which received proper, consistent maintenance--the Minsk-Moscow Highway.[115]

Soviet Command, Control, and Communications, in general, was adequate for the primitive, peacetime requirements of the Soviet Union in 1941 before the German attack. The C^3 System was designed for the more offensive, less defensive, military operations envisioned by the Soviets, the type of operations which German initiative precluded. In other

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[112] Sintzenich, 132d Infantry Division, p.2.

[113] Abberger, Roads and Railroads in Russia, p.3.

[114] Generalmajor Burkhart Mueller-Hillebrand, German Army Group Operations on the Eastern Front 1941-43 (Unpublished Foreign Military Studies Typescript #P-114a Historical Division USEUCOM, 1954), p.9.

[115] Bork, Russian Railroads and Highways, p.6.



Infantryman marching on the paved Minsk-Moscow Autobahn, 23 July 1941. Paved roads were normally reserved for the panzer units while infantry units were relegated to the dirt roads.

(Photo: Bundesarchiv)



The Minsk-Moscow Autobahn at Minsk, 10 July 1941
(Photo: Bundesarchiv)

words the Soviet C^3 System, like the Russian transportation system, was not constructed to cope with the harsh realities produced by the modern, mobile, very aggressive German Wehrmacht executing Operation Barbarossa.

III. GERMAN PLANNING FOR OPERATION BARBAROSSA

On 21 July 1940 Adolf Hitler tasked the Commander in Chief of the Army, Generalfeldmarshall Walter von Brauchitsch, in face to face conversation, with the submission of plans for a campaign against the Soviet Union. One week later General der Artillerie Erich Marcks began developing such a plan, the essence of which was to neutralize the Soviet Air Force and destroy the Red Army employing surprise and mobility.[116] Generalfeldmarshall Friedrich Paulus, as the new Assistant Chief of Staff for Operations, continued to develop Marck's plan and, following validation of that plan in November and December 1940 by General Staff Exercises and Command Post Exercises with the weight and complexity of war games, Hitler issued his famous Directive Number 21 on 18 December 1940 for Operation Barbarossa, the invasion of the Soviet Union.[117]

The German objective in Russia was to acquire living space in the east by erecting a barrier against Asiatic Russia generally along the Volga River, to Archangel, and to prevent Soviet airstrikes against Germany. Operation

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[116] The German Campaign in Russia: Planning and Operations (1940-1942) (Washington, 1955), pp.1-25.

[117] A copy of Directive Number 21 is generally available in volumes on the Russo-German War. See Guderian, Panzer Leader, p.513 or Hugh Trevor-Roper, ed., Hitler's War Directive 1939-1945 (London, 1964), p.49.

Barbarossa was designed to achieve this objective by destroying the bulk of the Soviet Army in Western Russia with daring operations led by deeply penetrating armored spearheads. An Army High Command (OKH) Directive dated 31 January 1941 specified that the Army would prevent the withdrawal of Soviet forces attempting to escape destruction,[118] and to achieve this goal, the Army conceived of great encirclements to be executed by rapid, deeply-penetrating armored spearheads. The spearheads would prevent Soviet escape and facilitate the destruction, or capture, of the maximum number of Soviet soldiers by the accompanying foot-marching German infantry divisions. The German encirclements were designed to achieve surprise and quick execution to preclude any organized Soviet response and the battlefield within the encirclements was to be isolated by both air and ground units to further preclude any swift, coordinated counter-action. Planning was coordinated with German Customs Officials to allow army commanders to reconnoiter the border in conjunction with routine border security investigations without alarming Soviet border guards.[119] Further planning with Customs Officials permitted the relief in place of border units by regular army units before the attack to

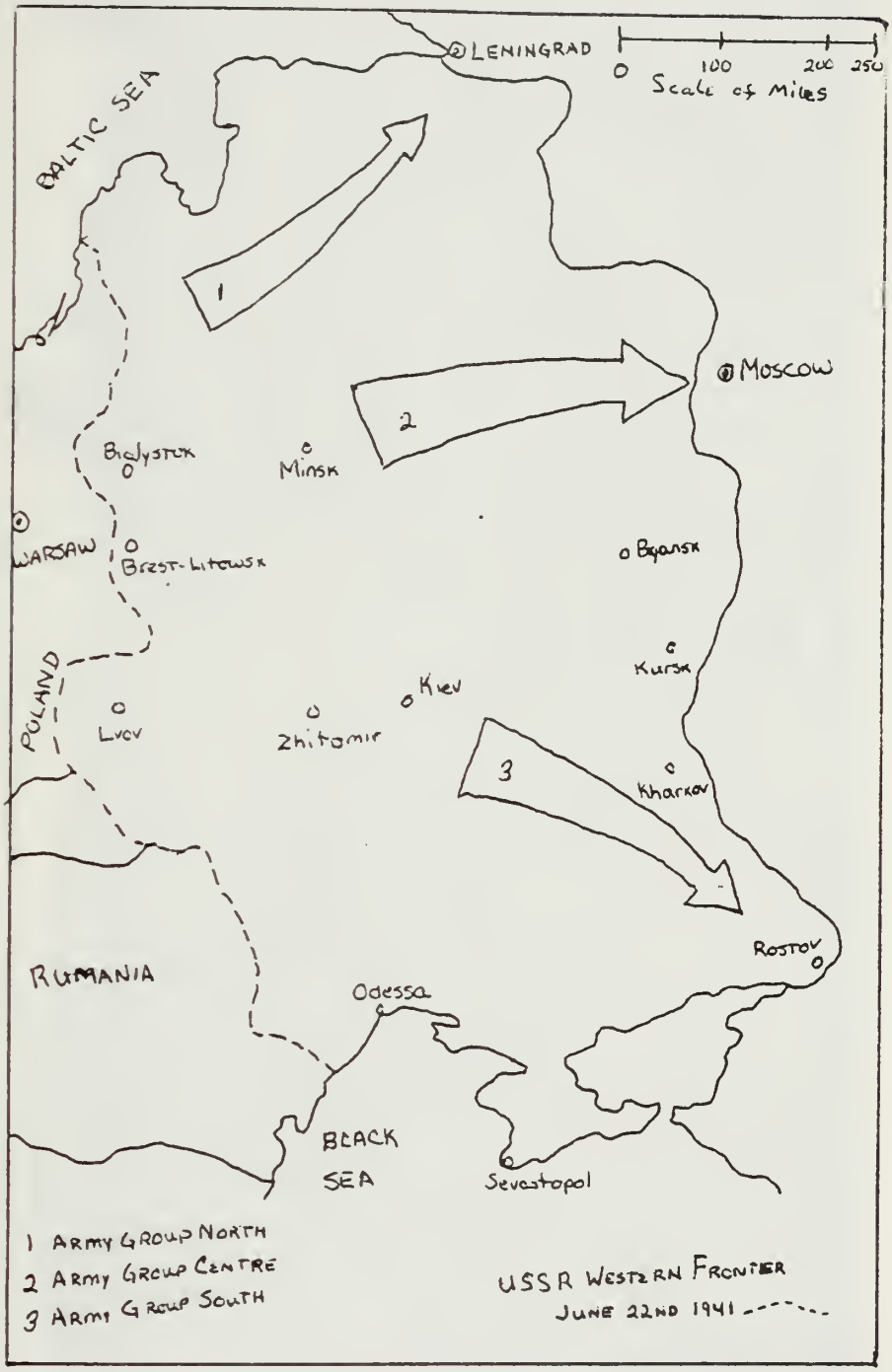
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[118] Barry Leach, German Strategy Against Russia (Oxford 1973) App.III A copy of OKH Directive dated 31 January 1941 is provided in Appendix C.

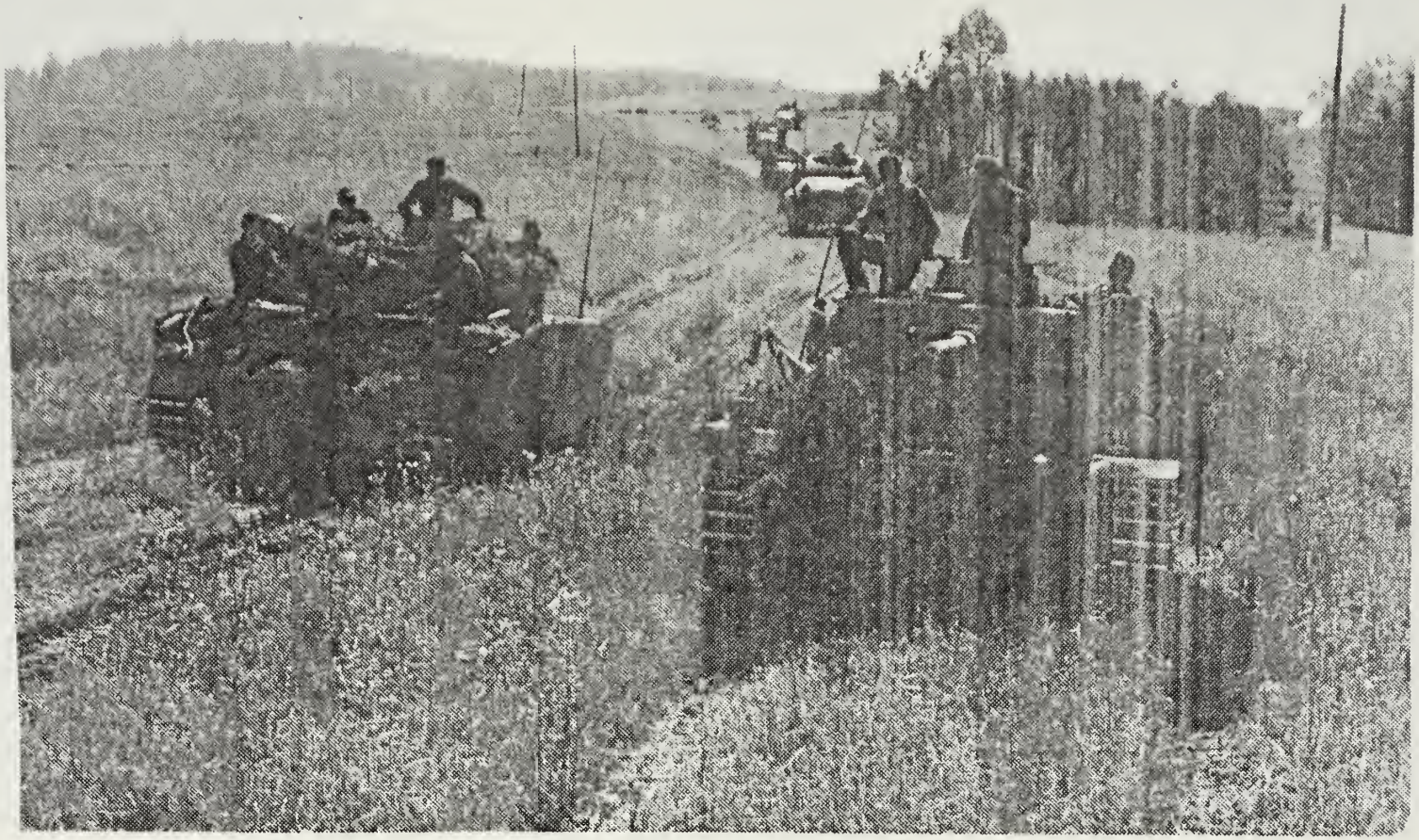
[119] Generaloberst Erhard Raus, Deceptions and Cover Plans (Unpublished Foreign Military Studies Typescript #P-Ø44b Historical Division USEUCOM, 1951), pp.1-9.

OPERATION BARBAROSSA THE GERMAN INVASION OF RUSSIA, 1941

SKETCH MAP 1.



Source: Generalfeldmarshall Wilhelm Keitel, The Memoirs of Field-Marshal Keitel (New York, 1965), p.149.



German Panzers led the rapid, deeply-penetrating drives into the Soviet Union. (Photo: Bundesarchiv)



German Infantry followed the speedy panzers, seeking out by-passed enemy and engaging them in close contact. (Photo: Bundesarchiv)

enhance the army's ability to achieve surprise.[120] Border crossing points were arranged according to the designated military objectives and the road system across the border[121] while the final movements to attack positions were planned for execution during the hours of darkness.

The artillery assets of the German Army were tasked to support the ground scheme of maneuver by destroying fortifications, communications facilities, command posts, and obscuring enemy observation. The German Army exercised great care in the selection of artillery targets and close coordination between infantry and artillery units was required due to scant supplies of artillery ammunition. The following examples of artillery preparation fires by units of Army Group Center demonstrate that some of the initial artillery fires of the Army Group were designed to proliferate the normal confusion incident to battle. The operations order of the 17th Panzer Division, stationed along the Bug River in Poland as an element of XLVII Panzer Corps of Panzer Group 2 (Guderian), required a 15 minute artillery and rocket preparation to cripple enemy defenses and eliminate enemy observation while establishing a smoke

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[120] Mueller Hillebrand, Army Group Operations, p.24.

[121] Interview, Charles von Luttichau.

screen to cover the crossing of the Bug River.[122] Although the Commander of the 187th Infantry Regiment (87th Infantry Division) preferred total surprise, the 9th Army, poised along the Pisa River in East Prussia, ordered a ten minute preparation along the entire Army front, which included the 87th Infantry Division zone, to suppress potential enemy strong points, bunkers, command posts, and observation posts. Simultaneously, anti-tank guns were ordered to eliminate three Soviet guard towers in the 187th Infantry Regiment's zone of action. The 9th Army had determined the disruption of the enemy's C^3 was of more value than the few minutes of surprise sacrificed by firing artillery preparatory fires.

In Directive Number 21, Hitler assigned the Luftwaffe the mission to paralyze the reaction and eliminate the effectiveness of the Soviet Air Force and to support the main army operations. The Air Field Manual provided guidance to the German Air Force for conducting air operations and was employed as a fundamental planning document by the Luftwaffe when planning for Operation Barbarossa.[123] German air operations were designed to be tactical in nature and to disrupt Soviet communications after eliminating the Russian Air Force.[124] The Luftwaffe planned to isolate encircled enemy

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[122]See Cano, German Preparations for a detailed account of the 17th Panzer Divisions's activities on 22 June 1941.

[123]Richard Suchenwirth, Historical Turning Points in the German Air Force War Effort (New York, 1968), p.77.

[124]Generalleutnant Hermann Plocher, The German Air Force Versus Russia, 1941 (New York, 1965), p.8.

forces by striking transportation facilities to cut off the encircled units from outside assistance and to preclude coordinated retaliation between encircled and relief forces by severing C^3 links.

Extensive effort produced detailed targeting information which the Luftwaffe divided into several categories, such as military objectives, industrial objectives, transportation facilities, and communications facilities.[125] Air reconnaissance assisting the targeting effort began during the winter of 1940-1941 after Hitler personally ordered such activity in October, 1940.[126] The General Staff prepared comprehensive target dossiers from the various target categories and these dossiers were so meticulously organized as to include large and small scale maps, air photos, and even relief maps when required.[127] Targets were additionally classified as those which would appear only after war began and those present before hostilities. By doctrine, air planning attached higher priority to those targets existing before the

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[125]The Air Manual specifically lists signal communications centers among these targets appropriate for destruction by bombing. See General der Fleiger a.D. Paul Deichman, The System Target Selection Applied by the German Air Force (Unpublished Typescript USAF Historical Study #186, 1956).

[126]Generalleutnant a.D. Andreas Nielsen, The Collection and Evaluation of Intelligence for the German Air Force High Command (Unpublished Typescript USAF Historical Study #171, 1955), pp.143-145.

[127]Ibid., pp.44-45.

attack and to the planning and intelligence gathering activities conducted during peacetime.[128]

The staff planning to support the ground operations of Army Group North was indicative of the Luftwaffe effort to prepare for Barbarossa and produced a plan designed to:

1) Attack all Soviet airfields within range and operate against Soviet aircraft in the air and on the ground to prevent any counter-air activity against army operations;

2) Provide fighter protection for the advancing ground forces against possible enemy air attack,

3) Interdict Soviet highways and rail traffic,

4) Attack the Soviet Baltic Fleet and merchant shipping,

5) Directly and indirectly support ground forces with bombers, and

6) Attack the Soviet air armament industry.[129]

Army Group Center, to the south, meanwhile, prepared a list of special targets, including signal centers and communication posts in eleven different cities, for the Second Air Fleet to attack on June 22.[130]

An extensive deception plan was devised to convince the Soviet Union, and the world, that German military intentions

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[128] Ibid., p.19.

[129] Plocher, The German Air Force, p.142.

[130] See Erickson, Stalingrad, p.98 for a list of the towns containing these communications facilities.

were still riveted on Great Britain during the winter of 1941 and to disguise troop reassignments required in preparation for Operation Barbarossa. German units redeployed eastward following the French and Balkan campaigns reportedly to alleviate German food distribution problems and to facilitate the deactivation of units already along the border.[131] Once deployed, units actually designated to attack the Soviet Union continued to train for the amphibious invasion of England. The exact number of units along the border was camouflaged by combining understrength units but maintaining the headquarters of the deactivated forces to simulate normal communications among non-existent commands.[132]

Final plans for the invasion of the Soviet Union included the employment of commando units and nationalist agents to penetrate Soviet defenses and support the army scheme of maneuver. These special organizations disrupted communications, spread alarm and confusion, and seized key transportation facilities vital to the German advance. For years preceding Operation Barbarossa, the Germans had recruited members of various ethnic groups adjacent to and within the Soviet Union, and trained them as agents and commandos. The agents formed several nationalists minority organizations

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[131] Raus, Deceptions and Cover Plans, pp.1-9.

[132] Ibid., p.10.

to be used behind enemy lines and the commandos were eventually formed into the famed Brandenburg Lehr Regiment, an army unit, for Operation Barbarossa.[133]

These organizations specialized in intelligence activities, sabotage, diversion, and the seizure of key military objectives. During May 1941, Abwehr II (German operational intelligence) formulated sabotage assignments for these groups against Soviet signals networks and frontier facilities, assignments to be executed only upon special orders of the High Command.[134] During the early days of June, the Army High Command finalized its own plans for the employment of agents and commandos in sabotage, diversion, and subversion and selected specific bridges, post offices, rail lines, railroad stations, and signal centers for destruction or capture.[135] Whenever agents or Brandenburg units operated in the military zone of action, they were controlled by the army or army group in whose zone they operated. Abwehr II was again busy in June planning activities similar to those already conceived of by OKH, designating forty-five objectives for special attack by the Brandenburgers and national minorities. The Brandenburgers,

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[133]For a more detailed treatment of the use of ethnic minorities in Operation Barbarossa by the Abwehr, see Leverkeuhn, German Military Intelligence.

[134]Apparently a reference to the Army High Command. See Erickson, Stalingrad, p.82.

[135]Ibid., p.97.

who usually dressed as Soviet soldiers to deceive the enemy, were concerned with those targets within 15 kilometers of the border to paralyze the enemy's defense and destroy the enemy's will to fight.[136] Agents, usually posing as indiginous civilians, operated against deeper targets up to 200 kilometers beyond the border and infiltrated the Soviet border for several months before the attack with orders to cause confusion and impede any Soviet response to the German thrusts of Operation Barbarossa.[137] Even as the regular army units crossed the border on 22 June, scores of agents and Brandenburgers accompanied them with orders to disrupt Soviet C^3 by destroying telephone lines and signal centers, and ambushing roads and rail lines. Undoubtedly, some of the activities perpetrated by the various nationalist groups and Brandenburg units were targets of opportunity, but it should be clear that their activities were planned to support the army scheme of maneuver by disrupting Soviet C^3 and attacking key military objectives. Specific counter-C^3 measures included disrupting communications, causing diversions, and inciting subversion while specific military objectives, such as bridges, roads, and rail lines were either seized or destroyed, depending on the needs of the German Army.

German planners studying communications in the Soviet Union prior to Operation Barbarossa were hampered by a

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[136] Ibid.

[137] Ibid., p.103.

dearth of information. The Germans intended to convert existing Soviet long-distance communications assets for German use but were unable to explicitly define in advance the precise tasks awaiting them, Planning before Barbarossa concentrated on anticipating the general undertakings associated with the conversion of any long-distance communications assets and the organizing of special reconnaissance teams, composed exclusively of officers, to search for information on Soviet communications facilities, specifically communications maps. It was not until four weeks into the campaign that an officer uncovered a few communications maps in a Smolensk Post Office which were subsequently exploited to design German communications networks employing Soviet facilities. Maps captured later facilitated German interception of Soviet telephonic communications, although telephone intercepts amounted to a relatively insignificant effort on the part of the Germans.[138]

German radio intercept operations in Operation Barbarossa were a function of the communications service of each separate branch of the Armed Forces and concentrated mainly on long range operations, exclusive of shortwave transmissions. The Army signal intercept organization, for example, consisted of evaluation centers at OKH and Army Group levels, intercept companies at Army level, and communications intelligence platoons at Division level.[139] The

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[138] Praun, Signal Communications, pp.75-76.

[139] Ibid., p.50.

intercept companies and communications intelligence platoons both possessed direction finding capabilities but only the intercept company processed encrypted signals. The objective of signal intercept operations planned by Army Group South, for example, was to ascertain the organization and distribution of forces of the Red Army and Air Force in European Russia west of the Urals. Colonel Randewig, Commander of Intercept Troops for Army Group South, described the mission of the intercept companies in his command as fourfold:

1) to analyze the operational technique of the enemy,

2) to analyze the network structure, relationships, and organization of the units.

3) to cryptoanalyze field ciphers, and

4) to perform final evaluation.[140]

The 7th, 3d, and 57th Intercept Companies were assigned to the 11th, 17th, and 6th Armies, respectively, in Army Group South and for Operation Barbarossa were tasked to collect radio intelligence in front of their respective armies[141] to develop the information specified in the radio intercept company mission described above.

The intelligence platoons at division level were limited to clear text intercepts only but performed missions similar to those enumerated for the intercept companies. Although

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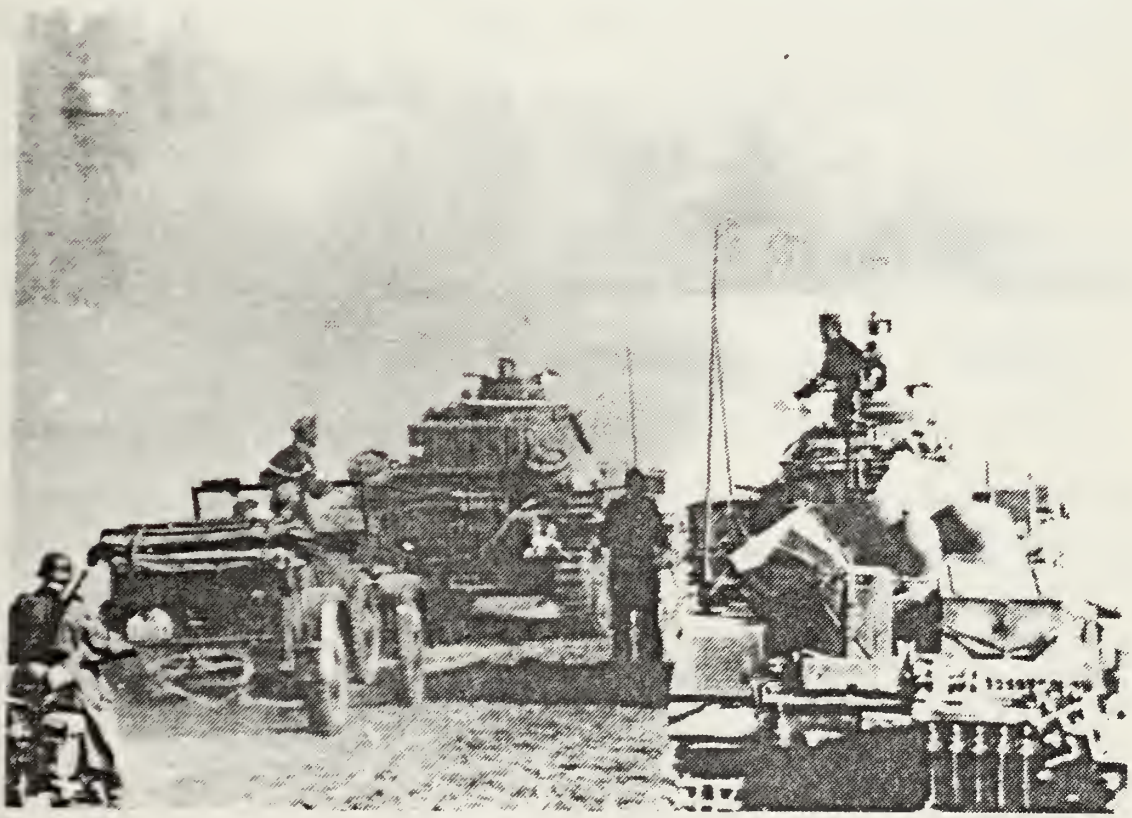
[140] Ibid.

[141] Ibid., p.90.



Orders on the March: German Command, Control, and Communications in Action during Operation Barbarossa

(Photos: Bundesarchiv)



the extent of such activity is still unclear, the Germans apparently did plan, to a very limited degree, to actively enter Soviet communications channels to manipulate those channels and deceive the enemy.

Despite the enormous potential of airborne operations in disrupting an opponent's command, control, and communications, airborne operations were conspicuously absent from the planning of Operation Barbarossa, although Directive #21 specifically discussed the "bold employment of parachute and airborne troops" against Russian railways. Neither side conducted military airborne operations during Operation Barbarossa, nor was there evidence to suggest any such operations were planned. It should be noted, however, that some agents and members of the Brandenburg Regiment parachuted into the Soviet Union shortly before the 22nd of June to gather intelligence and attack special targets but precise details are lacking and the magnitude of any such infiltrations can only be conjectured.[142] The failure of Germany to plan airborne operations for Operation Barbarossa should not be considered as an affirmation of a negative potential of such operations in a counter-C^3 role. The absence of airborne operations is more likely explained by the fact that, after the German airborne operations in Crete

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[142]Erickson, Stalingrad, pp.101-135.

(20 May - 1 June 1941), the Germans did not possess sufficient airborne units or air transport to allow such operations in Operation Barbarossa.[143]

One plan extremely well conceived by the Germans was an extensive psychological warfare effort to encourage Soviet soldiers to surrender and to cause disruption and disorganization in the Soviet C^3 System by the removal of entire units from the war.[144] The German psychological warfare campaign against the Soviets was a massive undertaking compared to similar operations in previous campaigns. During Operation Barbarossa the Germans used leaflets, loudspeakers, and radio broadcasts to advertise their propaganda enticing surrender with an 'honorable captivity'. They very perceptively tailored the leaflets to the Red Army soldiers who were suffering quick, crushing defeats during the early days of Operation Barbarossa. An example of one of the appealing, persuasive leaflets disseminated on 15 July 1941 is provided in Appendix C.

Did the Germans develop a plan to disrupt, disorganize, and otherwise manipulate Soviet Command, Control, and Communications during Operation Barbarossa? No evidence has

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[143] Generaloberst Hellmuth Reinhardt, Evaluation of German Airborne Operations (Unpublisbed Foreign Military Studies Typescript #P-105 Historical Division USEUCOM, 1951), p.90.

[144] Captain John Buchsbaum, German Psychological Warfare on the Russian Front 1941-1945 (Typescript Office of the Chief of Military History, Department of the Army, 1953), p.IV-1.

been uncovered that clearly indicates any well-defined, specific counter-C^3 plan for Operation Barbarossa. German sources investigated, in particular personal interviews conducted, were in unanimous agreement that no plan, in fact existed. As perhaps the best support of this contention that no plan existed, is the emphatic statement of Capt. von Luttichau that no counter-C^3 doctrine was taught in the military intelligence school he attended before Operation Barbarossa, nor did he observe any counter-C^3 plan during the conflict.[145] It should be noted, however, that German planning for Operation Barbarossa did include many isolated activities designed to support the rapid advances envisioned but which would, in fact, produce disruptive effects upon any C^3 system. Perhaps it is such planning for the ancillary support of Operation Barbarossa which has led some Soviets to the firm conclusion that the German forces did, indeed, employ a counter-C^3 plan. Consider that the official Soviet History of the Great Patriotic War recounts the "Increasing efforts of the enemy to destroy and disorganize the system of state communications."[146] Aleksandr Nekrich, himself veteran of the Eastern Front but more renowned as a historian of the German invasion, related his belief that the German counter-C^3 plan first interrupted critical telephone communications, then bombed staffs and communications

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[145] Interview, von Luttichau.

[146] The Great Patriotic War, p.175.

units, and finally employed signals intelligence and code breaking techniques.[147] The divergence of opinion between the Soviet and German sources can be explained, quite reasonably, by the fact that the Soviets were the recipients of any counter-C^3 activity, planned or otherwise, while the Germans were the perpetrators of such activity. Certainly the massive, quick, catastrophic encirclements planned by the Germans were designed to shatter all elements of the Red Forces in their paths including their command, control, and communications. The peripheral effects of these bold maneuvers must have appeared to the Soviets as a concerted effort to disrupt their command, control, and communications.

It is interesting to speculate concerning the reason the Germans did not develop any plans for countering Soviet command, control, and communications during Operation Barbarossa. Since C^3 was not recognized as such in 1941, perhaps the Germans simply ignored C^3 considerations when planning Operation Barbarossa. This reasoning is shallow especially when one considers the highly refined C^3 system employed by German forces, for example Panzer Group 2, during Operation Barbarossa.[148] In view of the German's low esteem for Soviet communications, they may have reasoned that no action was necessary against Soviet C^3 since it

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[147] Interview, Nekrich.

[148] See Praun, Signal Communications, for a detailed description of Generaloberst Guderian's C^3 system.



A PzBw, or Panzer befehlswagen. This German light command tank was built on a PzKw 1 chassis and measured 13'2" long, 6'9" wide, and 5'6" high and weighed 6.2 tons. A V-8, 100hp engine propelled the PzBw to a maximum speed of 32mph while .55 inches of armor protected the two-man crew and powerful radio equipment. The PzBw mounted one machine gun and allowed commanders to control large armored forces.

(Photo: Bundesarchiv)

would logically deteriorate as the communications facilities became overloaded in the normal course of events. Such a line of reasoning conflicts with the multitude of activities planned, and executed, to stun Soviet C^3 into disorganization and disarray at the very beginning of Operation Barbarossa. The Germans apparently respected Soviet C^3 enough to initiate specific precautions to assist its deterioration. The most probable reasoning, in retrospect, is that the Germans were confident their plan was quite sufficient to destroy the Soviets quickly, in perhaps three months or less, and planning other activities that did not directly result in the destruction or elimination of Soviet soldiers, for example destroying Soviet command, control, and communications was not productive. The German Whermacht knew that speed and surprise were the key ingredients required for the rapid destruction of the Red Army, and German objectives were best accomplished thru maximum use of those two elements.

IV. OPERATION BARBAROSSA AND ITS IMPACT ON SOVIET COMMAND, CONTROL, AND COMMUNICATIONS

German field commanders completed the final tactical planning for Operation Barbarossa during the night of 21-22 June 1941, briefed their troops with last minute instructions, and read the Fuehrer's personal order to his soldiers. The Germans had executed their deception plans (see Chapter III) superbly and succeeded in concealing from the Soviets the concentration of over 3,200,000 German troops and their equipment for the Blitzkreig into Russia. Although the Soviets had heard tank engines across the border and observed an occasional reconnaissance aircraft they had no conception of the potential for horror and destruction massed opposite them as the first artillery rounds were fired at 0305 in the north and 0315 farther south on 22 June 1941.[149]

Even before the artillery fired its heavy concentrations, agents of various nationalist organizations and members of the Brandenburg Regiment had unobtrusively infiltrated the Soviet border, although not without difficulty. The Germans generally had difficulty in introducing agents into the

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[149] During the six months preceding Barbarossa 17,000 trains rolled eastward with war materials. For their attack on the Soviet Union the Germans had deployed over 3,200,000 men--141 divisions of which 19 were Panzer--3,350 tanks, 7,184 artillery pieces, 600,000 lorries and a like number of horses, and over 2,000 aircraft. See Generaloberst Franz Halder, The Halder Diaries (Boulder, 1976) and Erickson, Stalingrad, p.98.

Soviet Union because of the strict Soviet border controls;[150] in fact, eight Ukrainians of the Organization of Ukrainian Nationalists (OUN) were intercepted by NKVD guards in the ten days preceding the attack.[151] Those who successfully crossed into Russia proceeded to execute their carefully orchestrated assignments and to disrupt Soviet C^3 by precluding the collection and dissemination of information about the attack, interfering with command and control, and generally disrupting the Soviet response to the German invasion. Near Brest, for example, in the Western Special Military District opposite Army Group Center, the Soviet 4th Army had interrogated a German deserter who had crossed the border near Volchin during the night of 21 June 1941. At 0220 the next morning 4th Army officials attempted to disseminate the results of their interrogation concerning the impending German attack and discovered that their telephone lines had been cut. The destruction of the lines had been carried out by infiltrators from across the Reich border. Even before this time, 4th Army had been cognizant of the interruption in Brest of the electric power and water supply and the telephone system. These interruptions were apparently inflicted by Brandenburgers who were dressed as Red Army soldiers and who were also at work seizing bridges and spreading alarm

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[150] Nielsen, Intelligence for the German Air Force, p.139.

[151] See John Erickson, "The Soviet Response to Surprise Attack: Three Directives, 22 June 1941." Soviet Studies, (April, 1972), 524.

and confusion.[152] The damaging of communications partly isolated the Soviet 4th Army and had much graver consequences than the simple inability to distribute an interrogation report, albeit an important one. At 0030 on 22 June, the Soviet High Command had transmitted a warning order for the German attack and directed units to prepare for combat and disperse aircraft on all field aerodromes. The Soviet 4th Army did not receive this directive until 0530, too late to be of value since the Germans had already begun their attack earlier at 0315 when the Luftwaffe attacked the neatly aligned rows of Soviet aircraft and Army Group Center captured intact the six Bug River bridges guarded by the Soviet 4th Army.[153] Other units did not receive official warning of the German attack until 0800, almost five hours after the onslaught began. The loss of communications by the Headquarters, 4th Army, before the attack was not an isolated incident. As far south as Sevastopol on the Black Sea, communications had also been cut as a prelude to the initial German assault. At 0320 the commander of the Sevastopol garrison, Major-General Morgunov, realized his communications had been tampered with while attempting to black out the city as German aircraft approached. Communications between Moscow and the Sevastopol Naval Headquarters,

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[152] Ibid.

[153] Ibid.

however, continued to function as before.[154]

As German regular army units crossed the border shortly after 0305 in the north and 0315 farther south, diversionists and saboteurs accompanied them to proliferate the disruption begun by their comrades earlier in support of the German advance. The goal of the initial efforts of the diversionists and saboteurs was to stun Soviet C^3 and hinder Soviet response to the attack of the German Army and Luftwaffe. German commandos accomplished this goal by severing communications links to prevent the exchange of intelligence and the issuance of orders. The Soviet History of the Great Patriotic War recounts that, "After the first shot...the diversionists cut communication lines linking headquarters-army-corps and corps-divisions."[155] The communication lines referred to were apparently telephone and telegraph lines. German commandos also seized key transportation facilities, particularly bridges, to facilitate the rapid advance of the mobile German formations and interrupt Soviet attempts to establish any cohesive defense. In Army Group North's area alone, Lithuanian activists seized twenty-four important bridges during Barbarossa.[156] On 22 June Brandenburgers assisted Army Group Center units capture intact all bridges

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[154] Ibid.

[155] The Great Patriotic War, p.12.

[156] Heinz Hohne, Canaris (New York, 1979), p.460.



German infantry troops of Army Group Center (above) cross the Bug River 24 kilometers east of Chelin on 22 June 1941 and advance on the Soviet side of the Bug (below) to engage the enemy. (Photos: Bundesarchiv)



across the Bug River as part of that Army group's first move into Soviet territory.[157] Still further south, elements of the Brandenburg Regiment established a bridgehead over the San River for Army Group South.[158]

Airborne even before the artillery concentrations began at between 0305 and 0315, the Luftwaffe struck Soviet airfields, communications facilities, and transportation targets with great effectiveness during the early hours of Operation Barbarossa. Striking all airfields in range, the Luftwaffe dazed the Red Air Force and materially destroyed it on the first day and achieved air superiority within two or three days.[159] The Luftwaffe struck sixty-six airfields in the border military districts and by noon destroyed 1,200 Soviet aircraft, 800 of which had been on the ground when destroyed.[160] More than half of those aircraft lost on the ground were in the Western Military District where 528 planes were annihilated before take-off and 210 more were destroyed in the air.[161] The Soviet failure to quickly

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[157] Erickson, Stalingrad, p.109.

[158] Hohne, Canaris, p.460.

[159] Compare Plocher, The German Air Force, p.85, and David Downing, The Devils Virtuosos: German Generals at War 1940-5 (London, 1977), p.63.

[160] The Great Patriotic War, p.16.

[161] Ibid.

disseminate Marshal Timoshenko's warning order[162] provided neatly aligned, easily destroyed, rows of Soviet aircraft as targets for the Luftwaffes's first wave of bombers. Not surprisingly, the early, immensely successful Luftwaffe attacks astounded the Red Air Force and achieved air supremacy for the German Air Force. As a consequence of the success of the initial attacks, the Luftwaffe was able to turn its attention quickly to supporting ground operations.

Not all of the Luftwaffe was totally preoccupied with the Soviet Air Force on 22 June 1941, as some German planes attacked Soviet communications and control facilities. The V Air Corps, under General der Flieger Robert Ritter von Greim, supported Army Group South in the Zamosc-Lublin area and attacked the main telegraph office and army telephone exchange in Lvov and a divisional telephone exchange in Lutsk.[163] Further north in the Baltic Military District German bombers destroyed large amounts of equipment and severed the communications of the 8th and 11th Soviet Armies as these units protected the approaches to the towns of Vilna, Riga, and Shauliya. Coincidentally, the 11th Army had received no orders at the time the Luftwaffe shattered its communications. It was not until almost 0600, almost

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[162]The warning order issued from Moscow at 0030, 22 June was actually Soviet Directive Number 1, the first of three issued by the Soviet High Command on 22 June. See Erickson, "The Soviet Response."

[163]Plocher, The German Air Force, pp.51-53.

three hours after the German artillery opened fire, that the 5th Rifle Division of the Soviet 11th Army finally received some instructions. As the officers of the 5th Division observed from high ground the German advances, they received orders not to engage in operations since the German activities were merely a provocation.[164] The initial, stunning, successful air attacks against Soviet communications degraded the abilities of higher command staffs, that is corps and front levels, to collect accurate, timely information, to disseminate orders and to control the forces executing those orders.[165] The Soviets were likewise powerless to coordinate their mechanized forces in effective counter-attacks because of severed telephone lines, destroyed radios, and the frightening influence of German air strikes on the Soviet troops.[166] The Soviets in general experienced unusual difficulty from the very first in controlling their forces during Operation Barbarossa.[167]

The German Air Force was also very successfully occupied striking other targets for which there appears no clearly evident pattern. As the Luftwaffe attacked cities near the front it smashed military administration buildings and their

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[164] Erickson, Stalingrad, p.120.

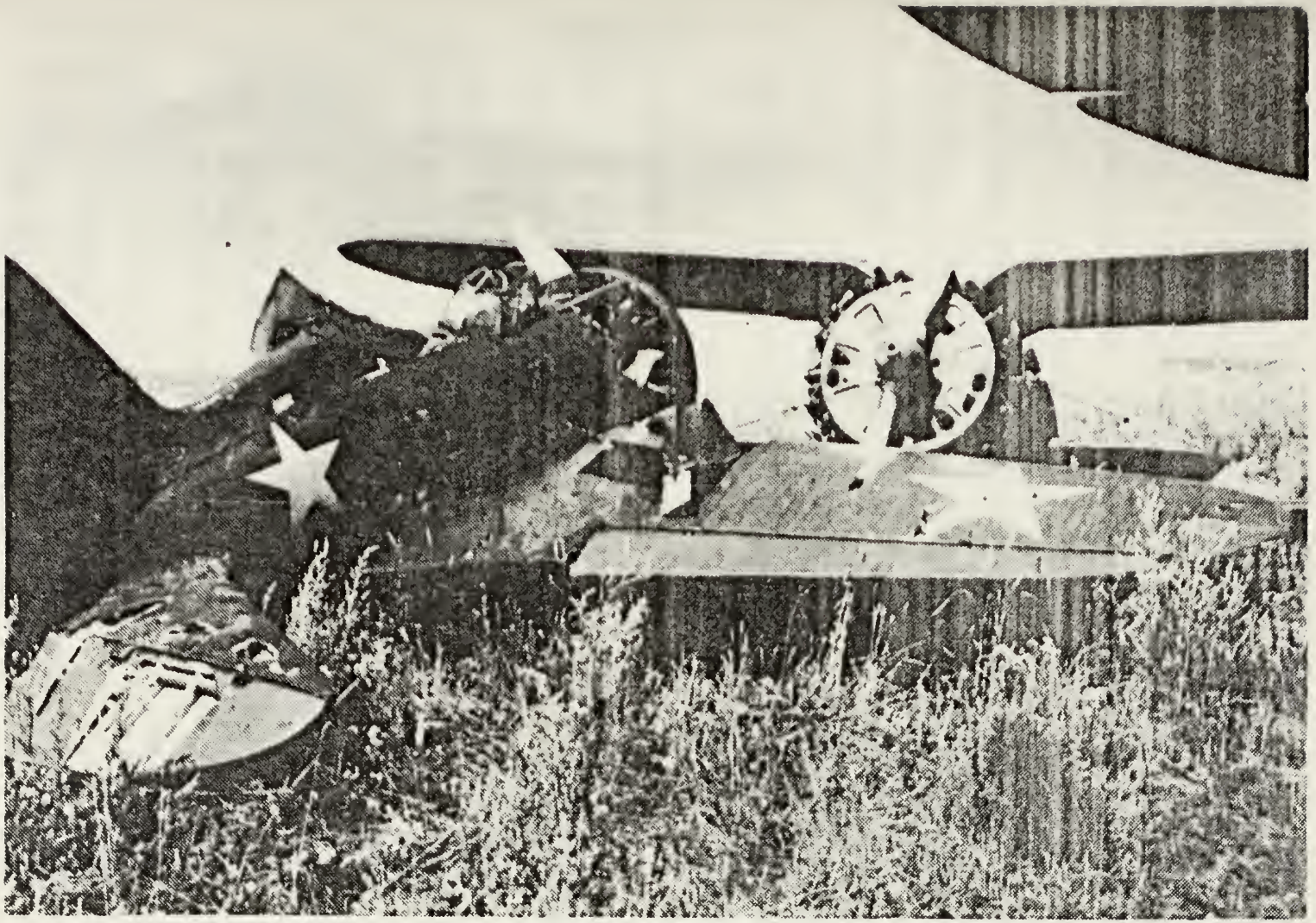
[165] The Great Patriotic War, p.12.

[166] Compare Albert Seaton, The Russo-German War (New York, 1971), and Erickson, The Soviet High Command, p.597.

[167] Sokolovskii, Soviet Military Strategy, p.251.



An example of the devastating effectiveness of the Luftwaffe raids of 22 June 1941. Over 800 Soviet aircraft were destroyed on the ground in the first 9 hours of Operation Barbarossa. (Photo: Bundesarchiv)



The Luftwaffe spread to destruction over 66 Soviet airfields on the first day of Barbarossa, achieving complete surprise against the Red Air Force.
(Photo: Bundesarchiv)

associated communications assets, causing chaos in the bureaucracy coordinating reserve mobilization.[168] Undoubtedly the general commotion produced by German air activity far behind the front compounded the normal disorganization incident to the reserve mobilization process, a process that consumed many days for some units like the 100th Order of Lenin Rifle Division near Minsk.[169] German pilots were at work at 0530 in the Western Special Military District purveying confusion and disorder by attacking 4th Army Headquarters at Kobrin and literally blowing it to pieces.[170] The Germans apparently observed an unwritten rule against destroying enemy headquarters. Such attacks could cause a total collapse in Soviet command and control and hinder the quick, orderly destruction of the Soviet military since subordinate units, lacking control from above, would inadvertently disperse.[171] In contrast, it appears Soviet headquarters were targets when their destruction would delay or prevent a successful withdrawal or promising counter-attack. It is quite possible that control of the Soviet 4th Army forces after only two hours of battle was no longer an important consideration since Army Group Center was already annihilating those Soviet 4th

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[168] Erickson, Stalingrad, p.127.

[169] Ibid.

[170] Ibid., p.118.

[171] Interview, von Luttichau.

Army units in the course of its initial, thunderous advance. It is interesting to note that 4th Army had attempted to relocate its command post to establish more reliable C^3 with its subordinate commands but had not received authority from the Front to move until the German bombers were well enroute to Kobrin.[172]

The Luftwaffe also unleashed its destructive powers on Soviet transportation facilities on the first day of battle. By attacking such targets as the Bialystok railway station[173] German pilots denied rail lines to Soviet forces reinforcing units already succumbing to the lethal blows of the German Army. Initially, transportation targets were less important than Soviet air and communications assets but assumed increasing priority as the conflict progressed and the Russian Air Force was eliminated as the primary Air Force concern. German air and artillery fires also struck fortified frontier positions, the Soviet border guards advancing to occupy these positions, and Red Army troops designated to back-up border guard units. The Soviets themselves have written that,

> "The sudden mass blows, carried out by German aviation and artillery, on the troops in the border districts considerably hindered Soviet covering troops from joining the battle in any organized manner. The situation was further complicated by the fact that aerial and artillery attacks, in the first few minutes of the war, knocked out

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[172] Erickson, Stalingrad, p.118.

[173] Ibid., p.129.

> most of the communications lines and networks. As a result, staffs of the front were unable to give firm direction to the troops, and conversely, were unable to get firm information on the tactical situation from the soldiers at the front."[174]

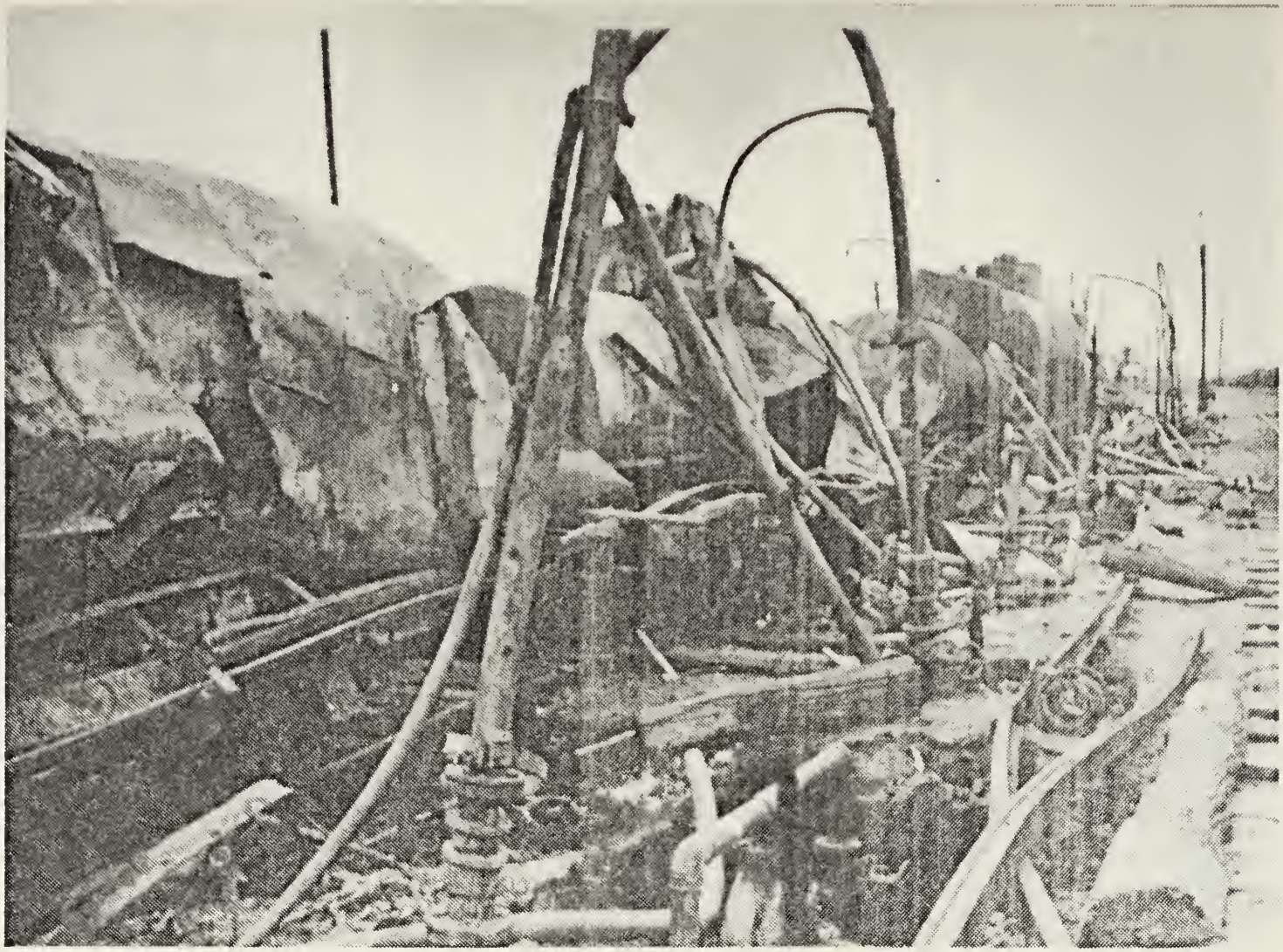
In this way, German supporting fires prevented the formation of any defense envisioned in the 1941 defense plan. The Luftwaffe achieved particular success against vehicular columns, tank units on the march, and rail movements. Once again the official Soviet History of the Great Patriotic War relates how "the enemy continued to make heavy, mass, air strikes against our troops as they moved forward to occupy fortified frontier positions." It continues, "They also bombed artillery positions, as well as tank units moving into position on the frontier. In addition, they straffed vehicular columns."[175] Alan Clark, in his classic volume Barbarossa described the Luftwaffe activity against transportation targets in the Western District as follows, "Roads and railways were raked by the Luftwaffe, some units had their effectiveness reduced by as much as half while on the march."[176] Further north, for example, on 22 June the 48th Soviet Rifle Division was enroute from Riga in the Baltic Military District to the border when it came under air attack at Raseynyay, about 60 kilometers south of Shyaulyay, The Soviet History of the Great Patriotic War

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[174] The Great Patriotic War, p.17.

[175] Ibid., p.17.

[176] Alan Clark, Barbarossa (London, 1965), p.46.



The results of a Luftwaffe attack on the Smolensk rail facility during Barbarossa. (Photo: Bundesarchiv)

continues that the 48th Division then "was attacked by German ground forces,...suffered great losses, and never reached the frontier. It was destroyed."[177]

All other actions as daring, swift, and crushing as they may have been, were only secondary and supportive of the main Army drives to rapidly destroy the Soviet Armed Forces. The three German Army Groups achieved almost total surprise along the entire front when German artillery opened Barbarossa by destroying Soviet fortifications, communications lines, opposing artillery units, and obstructing enemy observation of German advances.[178] Surprise was so complete that Brandenburg units and regular army units of Army Group Center captured intact every bridge over the Bug River in that Army Group area.[179] Behind the border itself, air and artillery fires caught Soviet Frontier Troops in their barracks or racing half-dressed to occupy their positions. Many of these positions remained empty as German panzers advanced swiftly through the Soviet border defenses.[180] Elsewhere, the Soviet Air Force, its fighters and bombers neatly aligned wing to wing, unexpectedly awaited the surprise appearance of the Luftwaffe. Only Major-General M.V. Zakharov, commander of the still

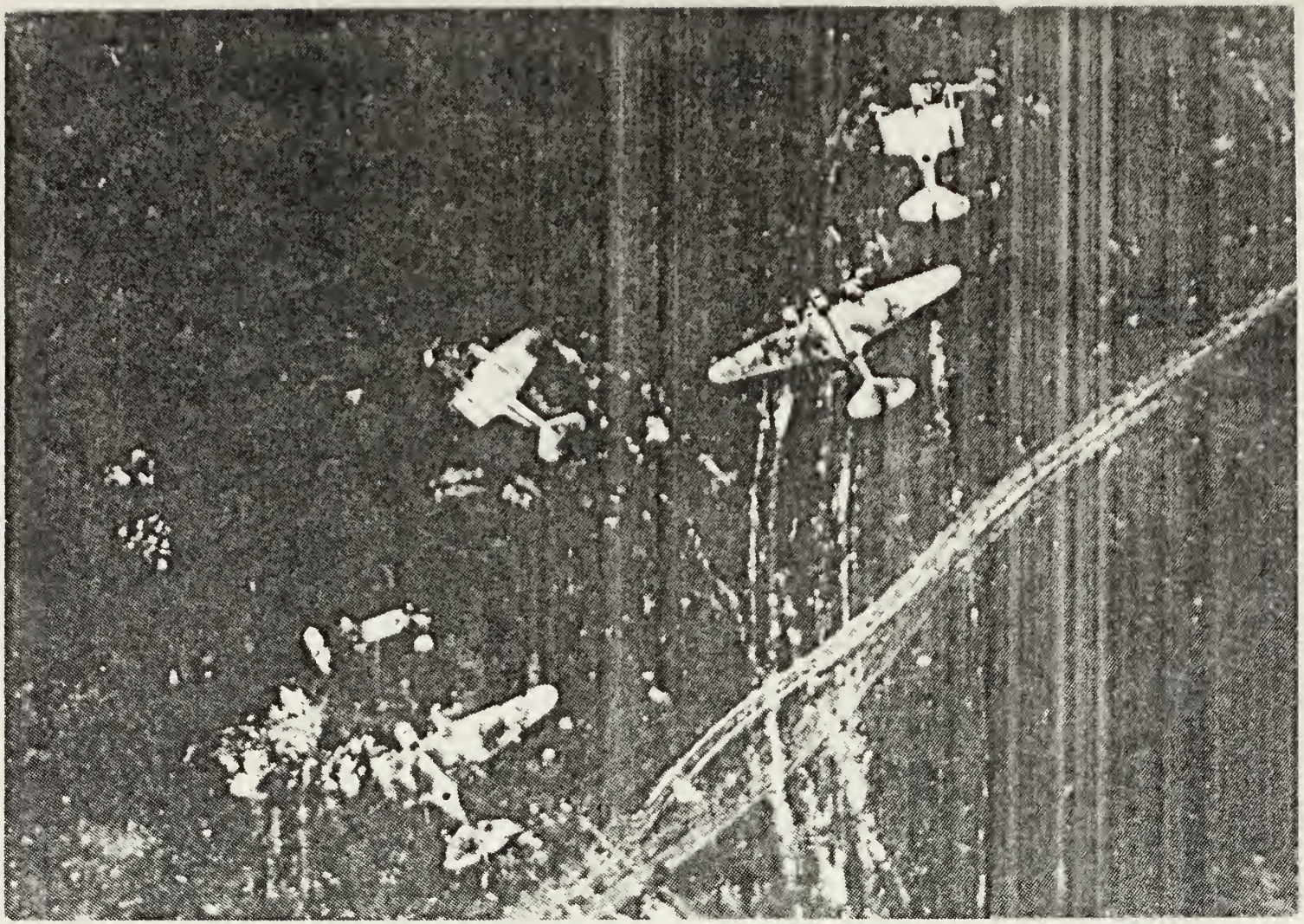
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[177] The Great Patriotic War, p.12.

[178] See The Great Patriotic War.

[179] See Plocher, The German Air Force, p.15 and Erickson, Stalingrad, pp.115-116.

[180] Erickson, The Soviet High Command, p.587.



Soviet DBII Medium Bombers apparently attempting to take off, unsuccessfully, before the arrival of the Luftwaffe.

(Photo: Bundesarchiv)

forming 9th Army in the Odessa Military District, ordered his aircraft dispersed before dawn, a precaution he instituted on his own initiative, without authorization from higher headquarters.[181]

German panzer units pierced the Soviet defenses with deep, swift penetrations such as were previously unknown to the Soviet military. Simultaneously German units effected the day to day task of killing enemy soldiers and destroying their units. The amazing depth achieved by these armored drives in just one day of battle is remarkable of itself, but these drives are also worthy of note because they are indicative of a counter-C^3 phenomena prevalent throughout Operation Barbarossa. Consider the advance of Generalfeldmarshall von Manstein's 56 Panzer Corps of Army Group North, towards Daugaupils and Dvinsk. The 56th Panzer Corps advanced 80 kilometers in each of the first two days of Barbarossa, in other words, Manstein's panzers moved over 100 miles beyond the Soviet border in just two days.[182] Even without the specific intent to disrupt C^3, such an amazingly quick, deep penetration as that of the 56th Panzer Corps, slicing so deeply into the enemy defenses, caused catastrophic disruptions of the opposition's command, control, and communications.

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[181] Erickson, Stalingrad, p.111.

[182] Clark, Barbarossa, p.44.

Generalfeldmarshall Manstein's own description of the disorder induced by his unit's movement is worthy of consideration.

> "A tank drive such as 56 Panzer Corps made to Dvinsk inevitably generates confusion and panic in the enemy communication zone; it ruptures the enemy chain of command and makes it virtually impossible for him to coordinate his counter-measures."[183]

Not only was the physical presence of an opposing panzer corps 80 kilometers behind the Soviet border upsetting to the Soviets on that first day of Barbarossa but the manner of its arrival certainly disrupted their lateral C^3 along the way. Consider that the 56th Panzer Corps destroyed several units along its advance and, by so doing, also eliminated the C^3 connectivity provided by those units. Further the passage of hundreds of panzers inevitably must have physically destroyed communication even if only by crushing telephone and telegraph lines and by capturing or intimidating messengers and couriers. 56th Panzer Corps undoubtedly by-passed Soviet reinforcements proceeding to the front, reinforcements who discovered they had in fact been by-passed and cut off from all avenues of withdrawal and C^3. Finally, the rapid drive of the German panzer columns surely stunned Soviet commmands and precluded the employment of their defense plans to resist the attack from the west.[184]

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[183]Erich von Manstein, Lost Victories (Chicago, 1958), p.186.

[184]See Mueller-Hillebrand, Army Group Operations.



Generalfeldmarshall Erich von Manstein, the brilliant commander of the German 56th Panzer Corps during Operation Barbarossa and perhaps the finest German strategist of World War II. (Photo: Bundesarchiv)

Enjoying surprise, offense, and mass the Germans generated bone-crushing attacks which jarred the opposing Soviet units and, by the sheer physical momentum of the attack, jolted Soviet C^3 into ineffectiveness. For example, the 11th Army covered the southern flank of the Baltic Military District at its boundary with 3d Army of the Western Special Military District. Army Group Center enjoyed particular success at this point, attacking with such strength that the 11th Army units were scattered or destroyed. The unexpected movement within 11th Army in response to the enemy attack destroyed communications between the army staff and subordinate commands, precluded intelligence reporting and prevented a coordinated response.[185] Meanwhile Lieutenant-General Kuznetsov's 3d Army, opposing the 9th German Army, had lost all telephone and radio communications within the first hour of battle and, except for runners, was isolated from the 11th Army to the north, the 10th Army to the south, and the Western Front to the rear.[186] The 10th Army was in a similar predicament since its telephones had been severed and its radio communications jammed.[187] Obviously such a bleak situation prevented an accurate assessment by Soviet commands at all levels and precluded a coordinated, strategic response.

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[185] The Great Patriotic War, p.18.

[186] Erickson, Stalingrad, p.129.

[187] Werth, Russia at War, p.153.

The same dazed, uninformed conditions prevalent in the Western Military District pervaded Moscow as well since it too suffered from failing communications. After almost seventeen hours of battle the 'center' in Moscow issued Directive Number 3 ordering the Northwestern, Western, and Southwestern Fronts to take offensive action using coordinated operations and carry the war to enemy territory. Marshal Timoshenko reflected the general confusion of 22 June in Directive Number 3 by ordering attacks at unrealistic times by already damaged mechanized forces which were to be supported by Soviet planes unable to survive in the air against the Luftwaffe. The Fronts experienced extreme difficulty in complying with Directive Number 3 by attempting to implement it as directed.[188]

To fully appreciate the German disruption of Soviet command, control, and communications on 22 June, consider the case of the Western Special Military District and the disruptive actions and effects which occurred in that Military District and which are listed in Figure VI. The Western Special Military District had operating within it the 3d, 10th, and 4th Soviet Armies which defended approximately 470 kilometers of the Soviet frontier in Belorussia from Porjetsche in the north to Tehrush in the south.[189] German Army Group Center, specifically the entire German

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[188]See Erickson, "The Soviet Response."

[189]Erickson, Stalingrad, p.71.



The Panzer Leaders of Army Group Center:
Generaloberst Guderian (left), Commander, Panzer Group 2
talks with Generaloberst Hoth, Commander, Panzer Group 3
(Photo: Bundesarchiv)

Figure VI

Disruption of C^3 within the Armies of the
Western Special Military District on 22 June 1941.

3d Army (north)	10th Army (center)	4th Army (south)
Telephone communications severed	Telephone communications severed	Telephone lines cut
Radio communications inoperative	Radio communications jammed	Radio communications inoperative
HQ Staff killed by air strikes		Army HQ bombed
Remnants of HQ Staff forced to displace from Grodno by German 8th Division		Army HQ forced to displace from Kobrin to Bukhevich to Zapruda by Panzer Group 2

4th Army and Panzer Group 2 and elements of the German 9th Army and Panzer Group 3 attacked the Western Special Military District at 0315 on 22 June 1941. Shortly after 0315 the Soviet 3d Army in the north lost its telephone and radio communications with the adjacent Soviet 11th Army of the Baltic Military District further north and the Soviet 10th Army to the south, as well as the Western Special Military District to the rear in Minsk. Messengers were the only means of communications available to the 3d Army.[190] Some time during 22 June the 3d Army Staff was annihilated by a Luftwaffe raid.[191] The Soviet 10th Army was in a very similar situation since it had also lost communications with Western District Headquarters at the very beginning of Barbarossa and still lacked communications with the Soviet 4th Army to the south at 1600.[192] 4th Army was likewise unable to communicate with 10th Army to the north and the Soviet 5th Army just to the south in the Kiev Special Military District. Even before the Germans fired their first shot, 4th Army had lost all radio and telephone communications with District Headquarters. 4th Army reestablished communications with Minsk only to lose them again at 0530 when 4th Army was bombed out of its headquarters at

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[190] Ibid., p.129.

[191] AGC, IC, Daily Reports, 22.6.41 - 15.7.41 Budesarchiv Freiburg RH 19II/128, p.12 of file.

[192] Erickson, Stalingrad, p.129.

Kobrin.[193] It was not until 1600 that the Western Special Military District was able to reach 4th Army, this time by telegraph.[194] One can see that on at least one day, the first and perhaps most important day of Operation Barbarossa, communications on the Military District-Army level in the crucial Western Special Military District was almost totally lacking. Given that communications functioned normally between the Military District and Moscow, one still perceives a catastrophic disruption of communications, and therefore C^3, in this particular Military District since it could communicate with none of its subordinate armies. At this point a critical inability to exchange information and control forces becomes apparent.

Consider further the very illustrative example of the Soviet 4th Army and several isolated incidents which will demonstrate the immense disruption of command, control and communications within 4th Army on 22 June 1941. Almost an hour before the initial German artillery rounds slammed into its defenses, Headquarters 4th Army discovered its telephone lines had already been cut apparently by Brandenburgers who were dressed as Soviet soldiers and carried out additional acts of sabotage in Brest.[195] Shortly after 0315 the first sounds of the German 17th

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[193] Ibid., p.121.

[194] Ibid., p.130.

[195] Ibid., p.109.

Panzer Division's 15 minute artillery preparation fires began to cripple 4th Army defenses and eliminate Soviet observation of the 17th Panzer Division's crossing of the Bug River.[196] During, or perhaps shortly after the artillery preparation, members of the Brandenburg Regiment and regular army units of Army Group Center captured intact all six Bug River bridges guarded by the Soviet 4th Army--two road and four rail bridges.[197] At 0330 the 4th Army re-established communications with the Western Military District just before the Luftwaffe began attacking that District's airfields on which 528 planes were destroyed by noon.[198] At 0530, as 4th Army Headquarters at Kobrin received Soviet Directive Number 1, warning of a potential German attack, German pilots blew 4th Army Headquarters and its communications apart, forcing 4th Army to move its headquarters to Bukhevich three miles away.[199] The best was yet to come in the form of Generaloberst Heinz Guderian's Panzer Group 2 which advanced 80 kilometers through the sector of the 4th Army by nightfall capturing Kobrin[200] and forcing 4th Army Headquarters to

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[196] Cano, German Preparations, p.6.

[197] Erickson, Stalingrad.

[198] The Great Patriotic War, p.16.

[199] Erickson, Stalingrad, p.118

[200] Generaloberst Heinz Guderian, Panzer Leader, (Washington, 1979), p.155.

displace a second time to Zapruda.[201] By 1900 on June 22nd, the crushing, lightning advance of Panzer Group 2 and Generalfeldmarshal Guenther von Kluge's German 4th Army so devastated the Soviet 4th Army that, in the words of the noted historian of Soviet affairs, John Erickson, "The Soviet 4th Army was in no position to offer any effective defense."[202] The Soviet 4th Army did manage to fall back in front of the thunderous, quick advance of Panzer Group 2 which by 25 June had advanced 225 kilometers through what had been territory occupied by the 4th Army.[203]

As Operation Barbarossa progressed after June 22nd, the Germans continued to enjoy overwhelming successes, crushing Soviet army units and shattering their command, control, and communications. During Barbarossa, nationalist agents and Brandenburg units continuously supported the operations of those armies to which they were assigned by seizing strategic objectives, cutting rail lines, severing telephonic communications, and proliferating general disorder. These commandos were particularly active in front of Army Group North where members of the Brandenburg Regiment posed as Soviet casualties and used two captured lorries to seize the Daugaupils roadbridge over the Dvina River for Manstein's

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[201] Erickson, Stalingrad, p.130.

[202] Ibid., p.131.

[203] Guderian, Panzer Leader, p.155.

advancing 56th Panzer Corps.[204] Elsewhere Lithuanian activists seized twenty-four key bridges in advance of Generalfeldmarshall Busch's 16th Army and anti-communists in a Lithuanian Division at Vilna shot their political commissars and turned their unit over to the Germans.[205] In Lemberg, Ukrainian members of the Brandenburg Regiment seized the local radio transmitter on the night of 29-30 June and spread disorder among the local populace and military by proclaiming an independent West Ukrainian State.[206]

The Luftwaffe was incredibly successful during the first few days of the war, destroying over 2,500 enemy aircraft and achieving air superiority over the Soviet Air Force in front of Army Group Center within the first three days. Generalfeldmarshall Kesselring's Second Air Fleet, Army Group Center, quickly extended its air superiority to air supremacy and shifted operations from destroying the Red Air Force to providing direct and indirect support to ground operations.[207] As the Germans advanced eastward, the Luftwaffe continued to engage enemy air units as they came into range but Second Air Fleet directed its primary effort against troop concentrations, roads, rail lines, and

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[204] Seaton, The Russo-German War, p.102.

[205] Hohne, Canaris, p.460.

[206] Leverkuehn, German Military Intelligence, p.165.

[207] Plocher, The German Air Force, p.85.



Generalfeldmarshall Kesselring, Commander, Second Air Fleet (left) and Generaloberst Hoth, Commander, Panzer Group 3 coordinate air support during Barbarossa. (Photo: Bundesarchiv)

counter-attack formations. Initially the Luftwaffe raked rail lines and road columns to foil couterattacks and reinforcement operations. Air power depleted many road columns by as much as 50% and caused units traveling by rail to disembark well short of their destination.[208] For example, Army Group Center's 9th Army was advancing near Grodno and Kuznica on the afternoon of 24 June when the Soviets attacked from Bialystak and Lunna. Generalfeldmarshall von Richtofen directed his entire VIII Air Corps against the Soviet counter-attack and by evening the combined German air-ground effort had stopped the Soviet counter-attack and destroyed 105 tanks.[209]

Later in Operation Barbarossa, when it became apparent that the Soviets were withdrawing from their forward locations to establish a new line of defense further east, the Luftwaffe impeded their retreat by attacking withdrawing units and their headquarters to prevent, or at least disorganize, their retrograde movements. Consider Army Group North's attack east from the Dvina on 2 July. I Air Corps began supporting this drive by attacking Soviet fortifications but quickly shifted operations on 3 July to interdict Soviet rail and road retrograde movements forced by the German advance.[210] Further South, following the

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[208] Clark, Barbarossa, p.46.

[209] Plocher, The German Air Force, p.85.

[210] Ibid., p.144.



The effects of one of the hundreds of Luftwaffe attacks on the Soviet rail system during Operation Barbarossa. (Photo: Bundesarchiv)

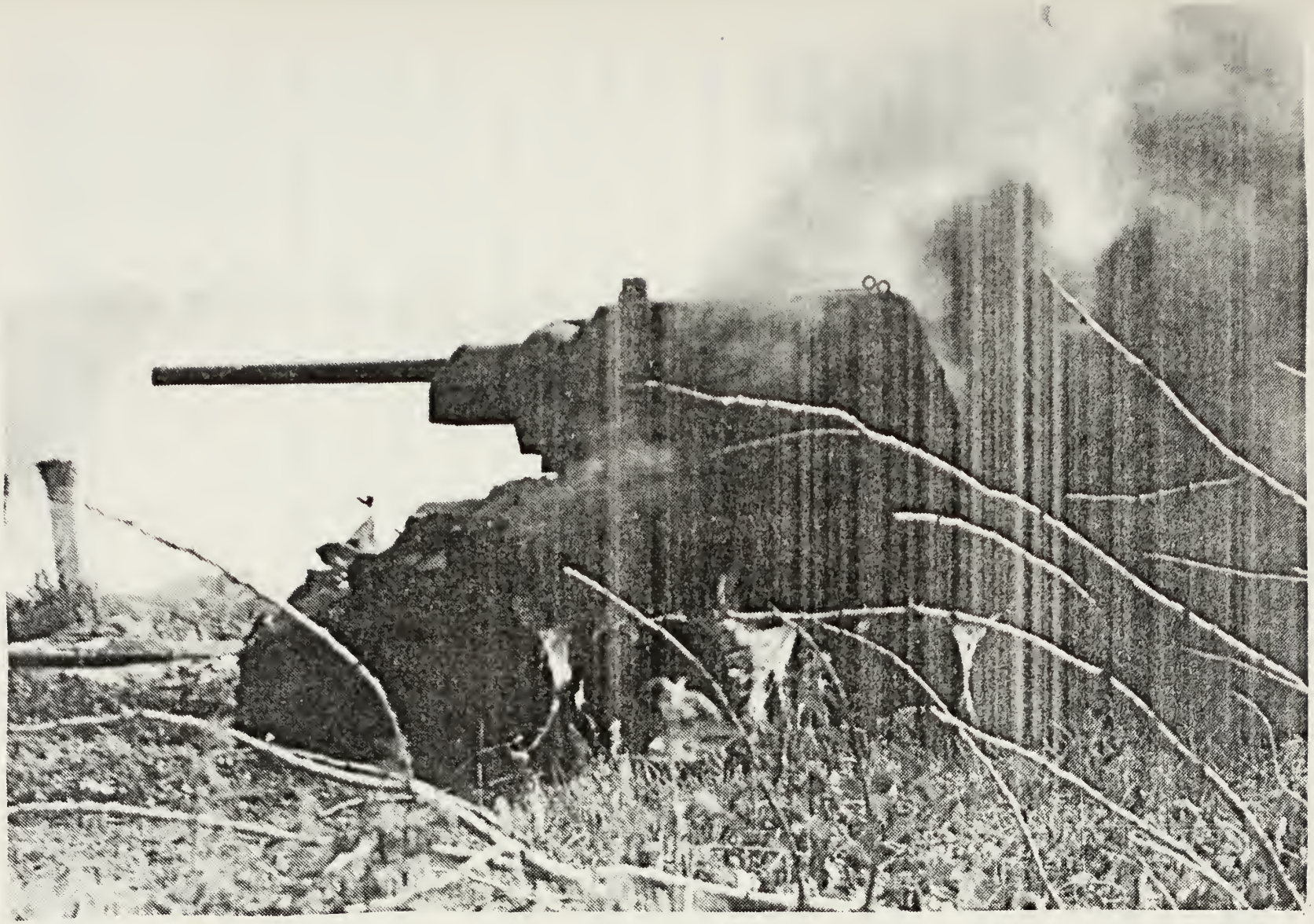
encirclement at Minsk by Army Group Center, the German Air Force interdicted rail movements and attacked road columns and river crossings to destroy the enemy fleeing encirclement at Smolensk. The V Air Corps supported the advance of Army Group South to the Stalin Line and between 6 and 9 July shattered heavy Soviet counter-attacks, particularly those directed against the 9th German Panzer Division at Birdichev. Following the German breach of the Stalin Line, V Air Corps struck the Dnepr River bridges at Cherkassy, Kanex, Kiev, and Gornostaypol and concentrated on moving columns and railroads of the increasing Soviet retrograde movements.[211] On 12 July the Luftwaffe began to interdict the advance of Russian reinforcements east of the Dnepr and, on 14 July the rail junction at Bakhmach was successfully attacked. German air power also attacked vehicular traffic and troop traffic centers in the Proskurov-Staro-Konstantinov area inflicting particularly heavy losses.[212]

German air superiority directly frustrated the utilization of surviving Soviet C^3. By exposing Soviet formations the Luftwaffe denied the element of surprise to those forces still under effective Soviet control. For example, following the Minsk encirclement, air reconnaissance provided Generaloberst Guderian with extremely critical intelligence on fresh Soviet forces in the Smolensk-Orhsa-Magileu

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[211] Ibid., p.57.

[212] Ibid., p.59.



A common sight during Barbarossa, a burning Soviet T-34 Tank. (Photo: Bundesarchiv)

area assembling to blunt Panzer Group 2's continued advance.[213] Aware of this information, Panzer Group 2 successfully continued its advance in spite of these unexpected enemy units. Further, consider the 210th Bomber Wing supporting Generaloberst Hoth's Panzer Group 3 from 22 June to 26 July. This wing alone destroyed 165 tanks, 2,136 motor vehicles, 52 trains, and destroyed or disabled 60 locomotives.[214] By 13 July, only three weeks into Operation Barbarossa, the Wehrmacht believed the German Air Force attacks on the Russian railroad had already prevented any possibility of large-scale Soviet counter-attack.[215] The Soviets in many instances were reduced even beyond the disadvantaged position they occupied on 22 June. They were forced to react to German initiatives but were unable to coordinate their forces without German knowledge or to seize the initiative themselves.

On the ground the German Army capitalized on its spectacular successes of the first day and penetrated Soviet territory at breakneck speed to encircle and destroy the Red Army. As mentioned earlier, Manstein's 56th Panzer Corps advanced over 100 miles in only two days of battle.

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[213] Ibid., p.96.

[214] Ibid., p.98.

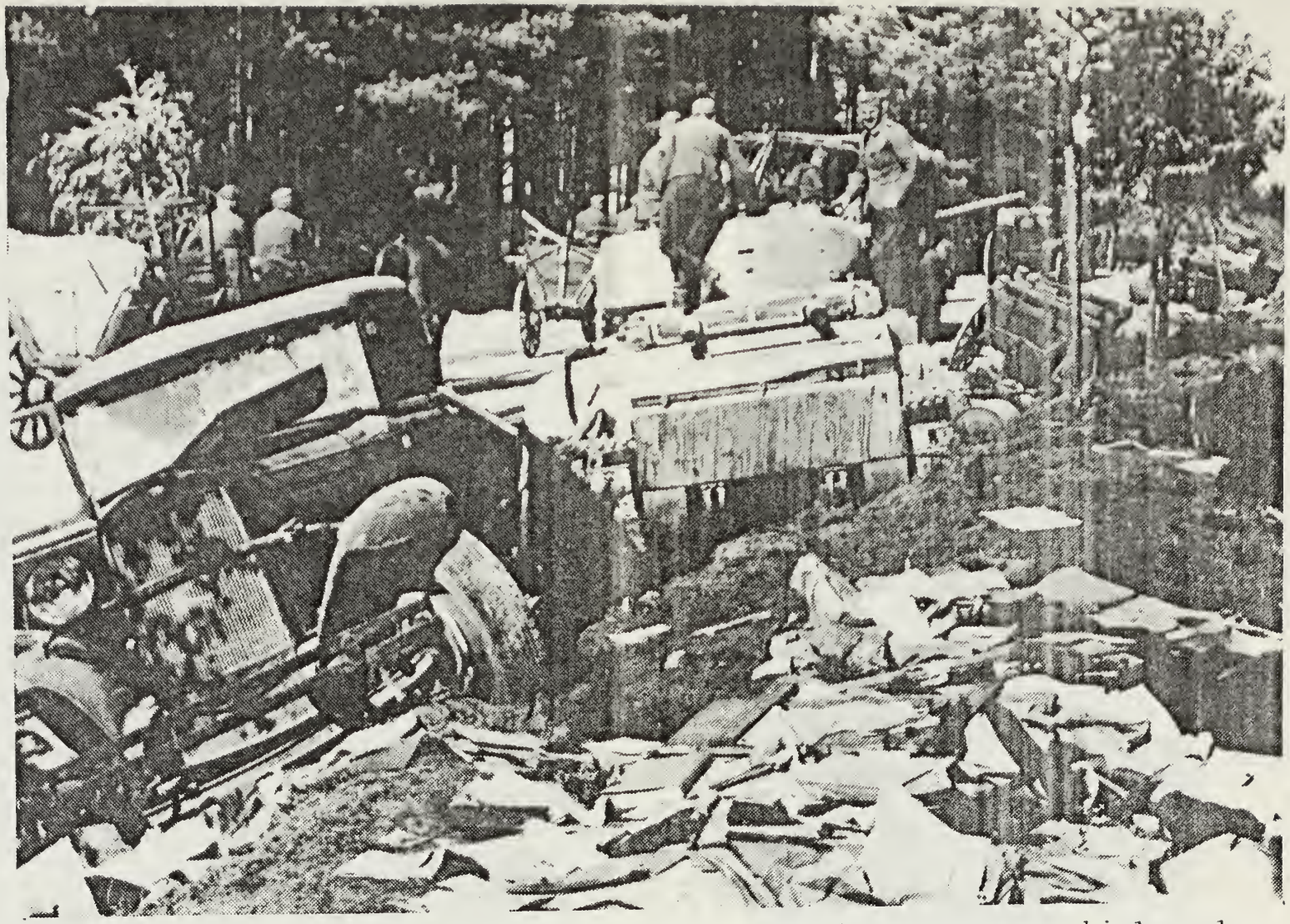
[215] Ibid., p.56. Compare with Schwabedissen, The Russian Air Force, pp.157-158 regarding the minimal effect of air activity on the Soviet Transportation System.

As the German forces proceeded they destroyed some enemy units and forced others to redeploy or retreat, in both instances disrupting their C^3. For example, as Army Group Center advanced towards Moscow, it effected two great encirclements. By so doing it completely isolated those Soviet forces within the enclosed pockets and severed their links to higher headquarters. By 8 July the Germans had captured some 290,000 Soviets in the Bialystok area, including entire corps, and, by 5 August another 300,000 soldiers had surrendered at Smolensk. While advancing over 500 miles in only 45 days Army Group Center had taken approximately 600,000 prisoners and destroyed or captured over 5,000 tanks. Generalfeldmarshall von Bock's Army Group was only 250 miles from Moscow.[216] The incomprehensible, massive losses of men and material sustained by the Soviets surely detracted from the Soviet war effort and gravely degredated its C^3. In the Bialystok and Smolensk encirclement the Germans eliminated entire divisions, complete corps from the Soviet balance. Not only were the Soviets unable to command, control, or communicate with these units, but the Soviet command structure could not rely on their services in any way. Such is perhaps the ultimate disruption of C^3.

The Germans directed an enormous psychological warfare effort against the Red Army and achieved the surrender of

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[216] Seaton, The Russo-German War, p.131.

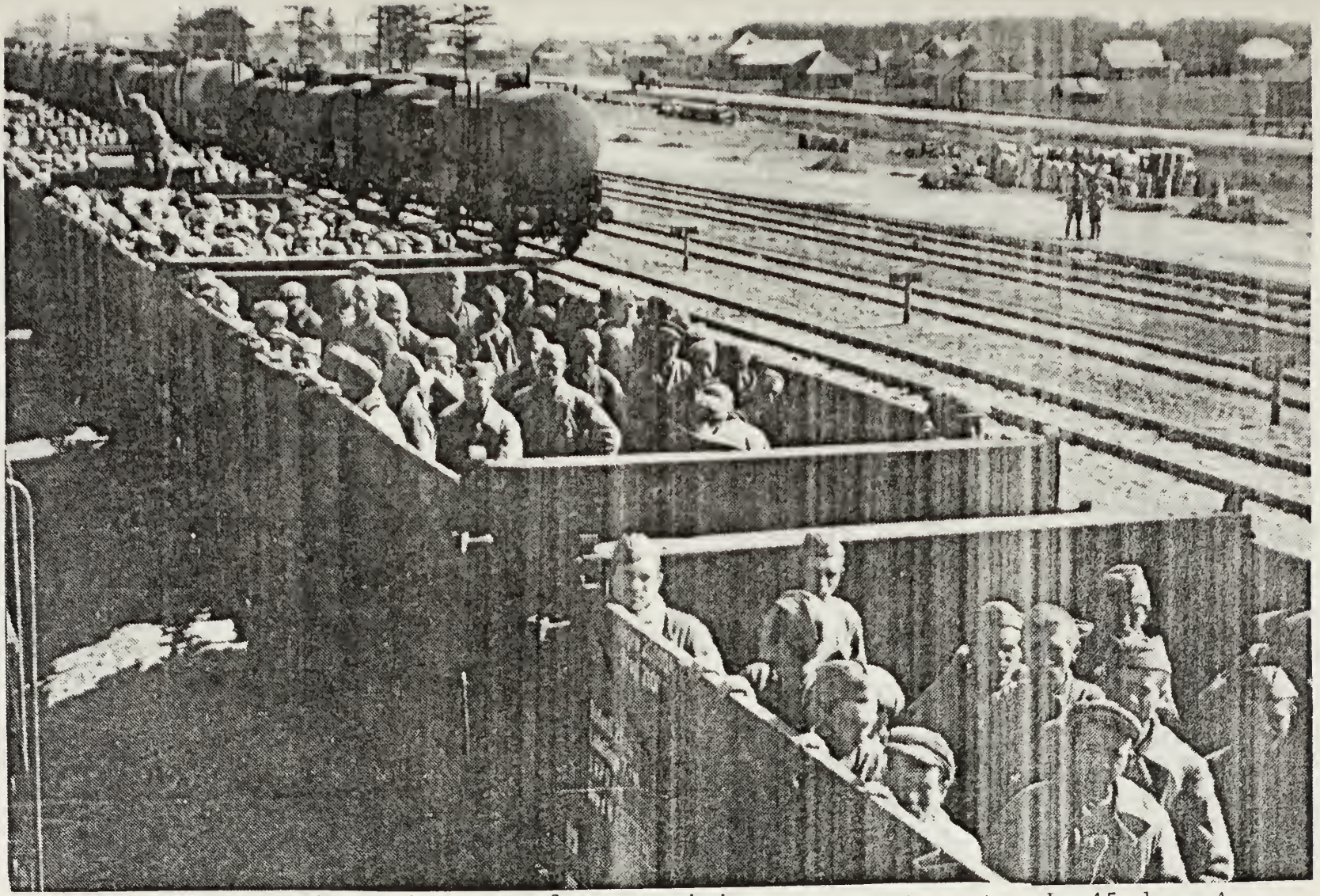


Stukas hit the mark: The effects of a Stuka attack on a motor vehicle column fleeing the Bialystok Encirclement, 30 June 1941. (Photo: Bundesarchiv)



Russian soldiers being captured (above) by Army Group North and (below) by the 25th Panzer Regiment, Army Group Center at Minsk, 27 June 1941. (Photos: Bundesarchiv)





Several hundred Soviet prisoners of war awaiting transport west. In 45 days Army Group Center captured over 600,000 prisoners at Bialystok and Smolensk.
(Photo: Bundesarchiv)

individuals and small groups as well as entire battalions.[217] Consider that 140 million leaflets were air-dropped by 16 August 1941, the earliest date for which statistics were available, and that other means such as loudspeakers and radio broadcasts were also used. Generalfeldmarshall Wolfrom von Richtofen, VIII Air Corps Commander, has related that, by 11 July, the leaflet program had indeed produced tangible results and that Soviet deserters indicated many more Red soldiers were ready to desert but were afraid to do so without their own individual leaflet, or "Special life insurance certificate" as they called it. Thereupon the Luftwaffe produced and distributed briefer leaflets valid for several persons. As a result the number of deserters clearly increased.[218] The overall German psychological warfare effort reduced the number of Soviet soldiers in the field opposing the German forces and disrupted the C^3 of at least those commands, regiments and higher, from which battalions deserted.

The fiercely intense tempo and surprise of German operations simplified their tactical signals intelligence task because many normally encoded Soviet radio transmissions were sent in the clear to achieve battle expediency. Throughout the war against the Soviet Union the Germans

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[217] See Buchsbaum, German Psychological Warfare for a detailed analysis of the German Psychological Warfare effort and its effects.

[218] See Plocher, The German Air Force, p.99.

considered the information produced by their signals intelligence service as extremely credible.[219] For example Generaloberst Halder, Chief of the German General Staff noted in his diary entry for 31 July 1941 information produced by signals intelligence which delineated the new Soviet Army command structure instituted on 10 July, complete with the names of the new theater commanders.[220] Earlier, as Panzer Group 2 advanced towards Smolensk on 6 July, signals intelligence informed Generaloberst Guderian of a new army headquarters directly to his front in the Orsha area. Aware of this information, Generaloberst Guderian realized he would have to hasten his attack and did, in fact, successfully achieve his objective at Smolensk despite the participation of an unexpected army in the battle.[221]

Divisions generally responded quicker to signals intelligence produced by their own signals intelligence platoon* than was possible at Army level.[222] Consider the 97th Light Division as it attacked the village of Lubaczow on the 22nd of June. At noon it intercepted a message indicating the enemy could no longer endure the 81st Artillery

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[219]Nielsen, Intelligence for the German Airforce, p.152.

[220]See Halder, Diary, p.1089.

[221]Guderian, Panzer Leader, p.166.

[222]Praun, German Radio Intelligence, p.227.

*Chapter 3 describes the German signals intelligence organization for Operation Barbarossa.

Regiment's punishing artillery fires and would be forced to withdraw soon. Aware of the enemy situation, the 97th Division pressed on and quickly seized its objective by 1400.[223] The Germans also routinely intercepted Soviet facsimile transmissions, but this communications medium was mainly used by civil agencies and such interceptions were of questionable value during Operation Barbarossa.[224]

The Germans rarely entered Soviet radio nets for the purpose of deceptive disruption but, during Barbarossa, there apparently was at least one incident of the Germans employing captured Russian radios to enter Soviet nets for deceptive purposes. During July the Germans deceived the Soviets into redeploying along a wooded, swampy area of the Luga River. This threat was conveyed via Soviet radio nets and successfully relieved the pressure on German units establishing a bridgehead across another section of the Luga River.[225]

At the highest governmental levels in Moscow C^3 catastrophies occurred similar to those already discussed. In some instances no current intelligence reached the national decision makers because of disrupted communications links.

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[223] Generalleutnant J. Prinner, Advanced Combat Operations of the 81st Artillery Regiment with the 97th Light Division, 22 June-10 July 1941 (Unpublished Foreign Military Studies Typescript #D-287 Historical Division USEUCOM, 1947), p.4.

[224] Praun, German Radio Intelligence, p.227.

[225] Raus, Deceptions and Cover Plans, p.11.

Communications, particularly telephonic communications, between the Stavka in Moscow and the Fronts and Armies seems to have operated consistently but communications from the Fronts and Armies to subordinate commands were frequently shattered by enemy activity or disrupted by the displacement or destruction of those subordinate units.[226] In either case, the end result was one in which the Soviet leadership in Moscow frequently was unaware of the true situation developing during Operation Barbarossa[227] and could not make intelligent, well-informed decisions on critical issues. The Stavka often lacked the communications means to quickly and confidently disseminate key directives and to control those forces involved as was the case with Soviet Directive Number 1. In some cases the required forces simply did not exist.

One may logically deduce that the disruption inflicted upon the military communications system was also inflicted upon the NKVD, Party, and Government Officials Communications Systems. It is difficult to determine the degree of disruption of these latter communications systems but it seems reasonable to assume that whenever the other systems

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[226]The Western Military District on 22 June is a particularly good example of this situation. On 22 June and for several days thereafter it had lost all but occasional communications of any type with its three subordinate armies, the 3d, 4th, and 10th. See Erickson, Stalingrad, pp.101-135.

[227]Seaton, The Russo-German War, p.99.

depended on the same communications facilities as the military system, the disruption was roughly the same in all systems. When the other communications systems utilized facilities separate from the military communications facilities the other systems very likely survived longer than the military system because the civilian facilities were less obvious to the advancing German troops who were concentrating on military targets. As some authorities contend, it is very possible that Stalin was frequently better informed of battle developments than his front commanders due to the separate Party Communications Systems,[228] although it is difficult to determine exactly how much better informed Stalin may have been.

The initial response of the national leadership of the Soviet Union to the fatal, extensive failure of Russian communications was the 23 June appointment of Marshal I.T. Peresypkin, already the Manager of the Chief Directorate of Communication of the Red Army, to the People's Commissariat of Communication.[229] Marshal Peresypkin employed several communications battalions to secure communication between Moscow and the Fronts. His new assignment also permitted utilization of the state communications to support the fronts and allowed military communications to augment the state as required. After only one day of battle, Soviet

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[228] Interview, von Luttichau. See also Seaton, The Russo-German War, p.85.

[229] The Great Patriotic War, p.174.

leaders were also painfully aware of the gross inadequacies of the governmental and military command structure, particularly its inability to cope with the scope and tempo of the German invasion. The Soviet Government and the Communist Party immediately began to formulate a politico-military command structure capable of responding militarily and economically to the German attack. During Barbarossa this command structure constantly adapted to the ominous, progressing German threat and included the addition and deletion of several echelons of authority and decision making bodies. Figures III and IV depict the evolution of the Soviet Command Structure which came to include the Stavka, State Defense Committee, and Theater Commands while the Army Corps were eliminated. A detailed description of the Soviet Command Structure as it unfolded during Operation Barbarossa has been provided in Chapter II.

The stunning, paralyzing influences cast upon Soviet C^3 by the German Wehrmacht during the initial days of Operation Barbarossa were not transitory although they did diminish in intensity as the battle moved eastward and Soviet lines of communications shortened.[230] The Germans aggressively maintained their offensive pressure to achieve their primary objective of eliminating all Soviet forces and in so doing also proliferated new C^3 disruptions and perpetuated disorders already achieved. Reeling from several quick,

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[230] Interview, Nekrich.



Generalfeldmarshall von Richthofen, Commander, VIII Air Corps (left) and Generaloberst Hoth, Commander, Panzer Group 3 effect coordination to aggressively maintain their offensive pressure on the Soviet forces.
(Photo: Bundesarchiv)

ravaging defeats, the Soviets attempted to recover from the surprise of the German attack and stem the advancing German tide in one coordinated move contained in Directive #3. Given the confusing state of affairs existing in Russia during June, a maneuver of such grand proportions quite possibly could have, by itself, wreaked chaos in the Soviet C^3 System even without the already persistent disruption produced by the Germans.

One final comment is appropriate concerning the multitude of chance occurrences inevitable in an armed conflict of the proportions of Operation Barbarossa. The planning and execution of the great encirclements of Barbarossa were remarkably successful and those encirclements produced unbelievable disorder on Soviet C^3. Operations supporting the great encirclements, for example air strikes and commando activities, were also very successful and produced additional disorder in Soviet C^3. What is difficult, perhaps even impossible, to describe is the counter-C^3 effects of those targets of opportunity fired upon, seized, or destroyed by German forces in the field. As only one example of this phenomenon, consider the advance of the 620th Mountain Engineer Regiment after it crossed the Upper Dvina and seized the village of Berilawlj in July. After a brief exchange of rifle fire elements of the battalion seized a nearby collective farm at 0530. As part of the attack process, the troops immediately disconnected the telephone at the farm, as they had in the village. The

German soldiers carried out this act rather casually but nevertheless in an almost habitual manner.[231] This particular incident involved only two telephones. But how many phones were destroyed, wires cut, or messengers intercepted by German soldiers, performing routine duties, who had no idea of their contribution to the disruption of Soviet command, control, and communications?

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[231] Generalmajor Erich Schmidt, Small Unit Tactics (Unpublished Foreign Military Studies Typescript # P-Ø6Øj Historical Division USEUCOM, 1952), p.8.

V. CONCLUSIONS

Despite the confusion pervading the Soviet command structure, the severed telephone lines and jammed radio nets, the interdicted transportation facilities and the frustrating disruptions of Soviet command, control, and communications previously illustrated, it is the conclusion of this thesis that the German military had formulated no concerted counter-C^3 plan for implementation against the Soviets during Operation Barbarossa. The Germans did perpetuate numerous individual actions against Soviet C^3, for example Luftwaffe strikes on telephone and telegraph exchanges and commando raids on bridges and telephone lines, and the jarring advances of German ground forces did disrupt, and in some cases totally destroy Soviet C^3. In spite of these actions and the effects they may have had upon Soviet C^3, research into published and unpublished English language sources and particularly interviews with German officers who participated in Operation Barbarossa prove conclusively that the Germans had, in fact, developed no counter-C^3 doctrine prior to Barbarossa and did not execute any counter-C^3 plan during the German attack into Soviet Russia.

How then does one explain the numerous disruptions of Soviet C^3 in general and communications in particular during the opening stages of Operation Barbarossa? Were

those disruptions simply a normal consequence of the war process? Is every armed force in battle susceptible to similar disruptions? In all likelihood other military forces will suffer many C^3 disruptions similar to those encountered by the Soviets during Barbarossa, although not necessarily for the same reasons. The Germans disrupted Soviet C^3 by well-planned, superbly executed, swift, deep penetrations which destroyed entire units, coincidentally destroyed their C^3, and violently displaced other Soviet units, which almost by chance, severed their communications both up and down the chain of command. Other units lost much of their capability to command and control because they interfaced with units which had already been displaced, destroyed, or otherwise disrupted. Also contributing to the disruption of Soviet C^3 were those operations, which spread disorder among the military and the civilian populace and seized or destroyed communications and tranportation facilities.

The war itself, in addition to the disruption noted above, caused much disruption of C^3, although it is difficult to determine what proportion of the disruption was attributable to the general effects of the war. The general confusion normally generated during the prosecution of hostilities is commonly referred to as the 'fog of war' and is a factor which should not be overlooked. Confusion inevitably arises from the sudden, unexpected occurrence of certain complicated, grave situations. Different

individuals have different perspections of these grave situations and these perspections affect the quality of information they report on any given situation. The various reports submitted by different reporters can combine to present a more or less complete description of the real situation. This reporting process forces a decision element removed from the actual occurrence to make a decision based on information which does not fully convey the true situation. The varying abilities of people to express information clearly and completely and the inevitability that certain facts may never be known combine to contribute additional confusion.

In addition to the disruptive influences discussed above, it is a further conclusion of this thesis that the Germans disrupted Soviet C^3 in essentially the three following ways:

1) Certain definite acts which were not part of a general German counter-C^3 doctrine for the beginning of a major offensive but which were clearly designed to disrupt Soviet command, control, and communications in support of the army scheme of maneuver.

2) Unexpected disruptive effects derived from other well executed Luftwaffe, artillery, etc., supporting operations; and

3) Bonus effects resulting from violent, aggressive Army operations which achieved surprise and penetrated,

encircled, and destroyed substantial elements of the Soviet armed forces.

Consider, for example, the disruption of command, control, and communications manifest in the Western Special Military District during the first few days of Operation Barbarossa as discussed in Chapter IV.

Given that all those individual events summarized in Figure VI were discreet actions not specifically designed to disrupt C^3 but rather to destroy or assist in the destruction of the Red Army it should be intuitively evident that these activities individually, but to an even greater degree, collectively, caused terrible disruption of Soviet command, control, and communications as was clearly evident in the case of the Soviet 4th Army described above.

Finally, one must remember that the massive, near catastrophic disruption of command, control and communications within the Soviet 4th Army in particular but the entire Red Army as well during Operation Barbarossa was the result of no specific, concerted plan and occurred in a time of relatively basic communications means and modest information requirements. Consider the sophisticated, sensitive communications and the voluminous information requirements of a modern C^3 system. The disruption possibilities of a few well-trained saboteurs, or accurately directed aircraft, or highly mobile, aggressive forces in a surprise attack executing a well-designed, comprehensive, concerted plan to cripple C^3 are impressive.

APPENDIX A

LIST OF EQUIVALENT GERMAN-US WORLD WAR II ARMY/AIR FORCE OFFICER RANKS

GERMAN	US
Generalfeldmarshall	General of the Army (Air Force)
Generaloberst	General
General der Fleiger (der Panzertruppen, der Artillerie, etc.)	Lieutenant General
Generalleutnant	Major General
Generalmajor	Brigadier General
Oberst	Colonel
Oberstleutnant	Lieutenant Colonel
Major	Major
Hauptman	Captain
Okerleutnant	First Lieutenant
Leutnant	Second Lieutenant

APPENDIX B

A DESCRIPTION OF THE SOVIET TRANSPORTATION SYSTEM DURING OPERATION BARBAROSSA

A. THE RAIL NET (Sketch Map 2)

In 1941 the Russo-Polish border area between the Baltic Sea and the Carpathian mountains was connected with European Russia by four main westeast rail lines which terminated in Leningrad, Moscow, the Donets Basin, and the Black Sea port of Odessa. These lines were crossed by four main north-south lines which connected Leningrad with Odessa; Archangelsk with the Crimea; Moscow with the Donets Basin; and Moscow with the Caucasus. This network was then crossed by two diagonal lines extending from Koenigsberg (Kaliningrad) to Kremenchug and from Riga to the Donets Basin. In addition, this net connected with the Siberian and Mongolian systems to the east and with the Murmansk line to the north.

The main rail lines of European Russia were supplemented by a number of low-capacity branch, spur, and narrow gauge lines. Most of the latter had been built to meet the requirements of World War I. An overall view of the Russian rail net gave the impression of a lack of uniformity. In some places main lines were single-track for no apparent reason. Often, construction apparently intended to establish lateral links between main lines ended in the middle of nowhere.

There were three areas in which industrial development had resulted in a certain density of trackage: the Donets Basin, Moscow, and Leningrad. The following statistics may serve to illustrate the density of the Russian rail net as compared to that of Germany. In 1938 the USSR had but .65 miles of rail per 100 square miles, most of which was in European Russia, where the average was 1.8 miles for the same area. During the same year the German rail net averaged twenty miles of rail per 100 square miles. Expressed differently, Russia had 3.3 miles of trackage per 10,000 population; whereas Germany had 5.8 miles in the same year.

1. Railroad Plant

Since rock is scarce in Russia, few railroads had beds of crushed rock ballast. In lieu of rock, sand and gravel was widely used.

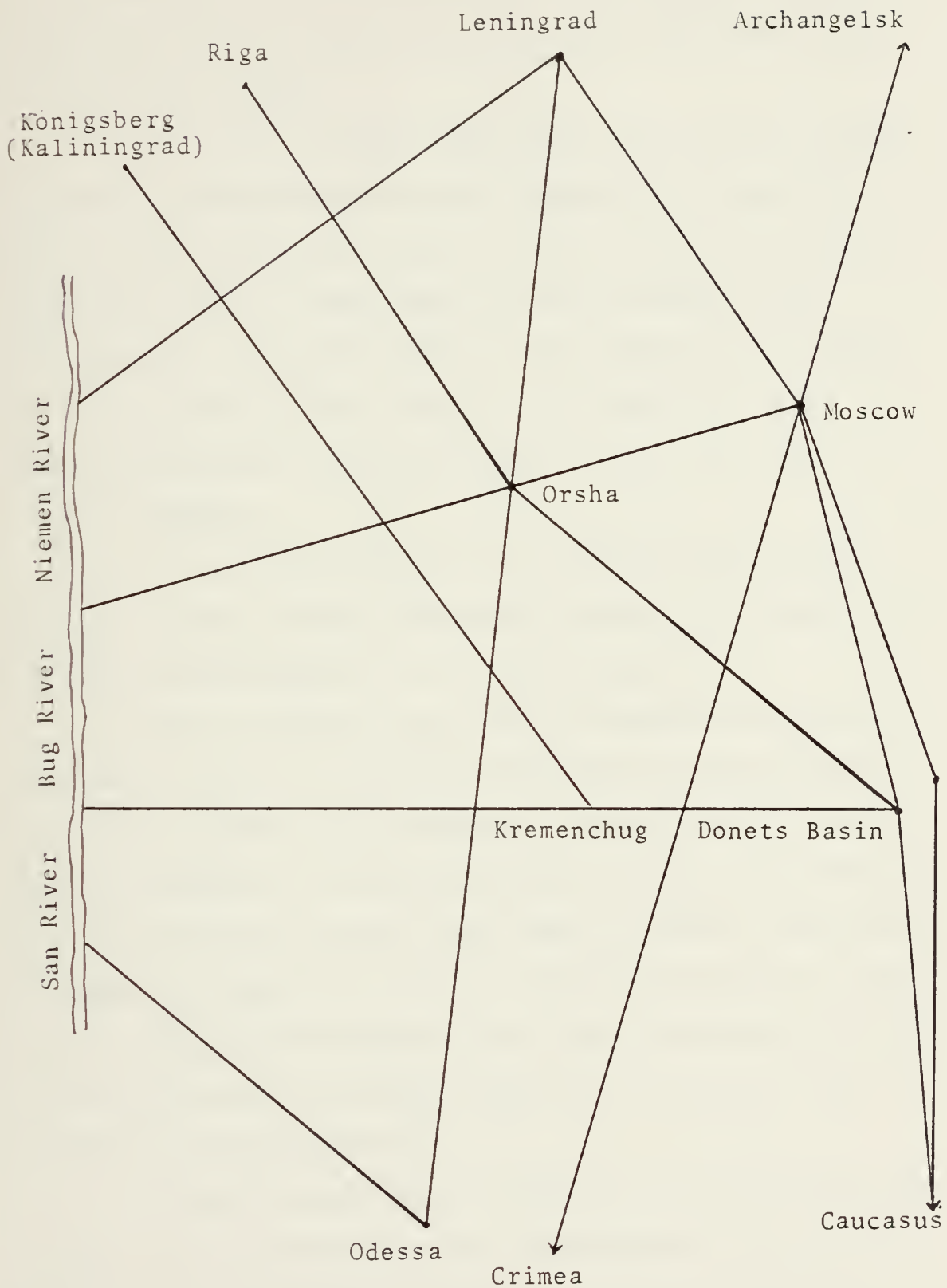
The prevailing gauge of Russian railways is five feet, as compared to a gauge of four feet eight and one-half inches, which is standard in most other countries. This wider gauge provided more loading space per car and compensated to some extent for the Russian shortage of rolling stock and the limited capacity of the railway lines.

Marshalling yards, shunting installations, and turn-arounds (wyes instead of turntables) covered wide areas because land was cheap. This dispersion was advantageous in the event of air attack.

Signalling and safety devices, even on the main lines, were primitive. In many cases only a semaphore was

Sketch Map 2

SCHEMATIC DIAGRAM OF THE RAIL NET
OF EUROPEAN RUSSIA



used to designate the right-of-way. The Germans observed electrically-operated devices only in the Moscow - Kharkov line, which, incidentally, was the only line with a bed of crushed-rock ballast.

The German invaders found that some of the railway bridges in European Russia were temporary, having been built during World War I. By German standards they were unsafe and most of them could not have supported the trains loaded with heavy tanks, which were in use during the later years of World War II. On several of these bridges the girders, made from sheet-metal, had been riveted together.

For unknown reasons there were no double-track bridges. Double-track lines which crossed rivers did so on separate spans spaced 50 to 100 yards apart.

Much of the coal and water of European Russia is unsuitable for use in locomotives without special processing. For instance, at Losovaya, a large rail junction south of Kharkov, the Germans found a large tank of oil at the coaling point in which coal from the Donets area had to be soaked to render it usable. Between Dnepropetrovsk and Stalino the water at each of the eleven watering points had to be treated with different admixtures to prevent the formation of boiler scales.

Along the Russo-Polish border, east of the Bug and Niemen Rivers, the Russians had established a strip of no man's land to deprive an invader of railroad facilities.

This deficiency proved disadvantageous to the Germans during their advance as well as at the time of their withdrawal.

2. Rolling Stock

Russian locomotives were clasified by type similarly to those in other countries. In addition, the Russians used a rather complex condensor locomotive, the "Siberian," supposedly of American manufacture, which could cover up to 600 miles without taking on water.

Frequently, wood was used as fuel on secondary lines, especially in the north.

In employing western European locomotives in Russia, the Germans had to remember that in Russia water stations are farther apart than in most other countries since Russian locomotives have a greater water capacity. Throughout the war the Germans converted Russian-guage freight cars to normal gauge. The German State Railway developed specially equipped shop trains with lifting devices which permitted the change-over within a few minutes. However, the gauge of the Russian locomotives could not be changed.

3. Personnel

Because of the vital role which the railroads played in the national life, Russian railroad personnel considered themselves a separate class within Russian society. This feeling was expressed not only by pride in their profession but also by a love for their work that led them in times of stress to hide their tools from friend and

foe alike in order to be able to go back to work the moment traffic was resumed. Their technical proficiency and willingness to work, even in the employ of the enemy, were remarkable.

B. HIGHWAYS

1. Background of the Existing Highway Net

In 1941 European Russia did not have a highway net comparable to those in western European countries. The few roads which existed had only a limited capacity and apprently had not undergone any appreciable change in construction or lay-out during the past 100 years, a condition due primarily to the relatively small demands of peacetime traffic. There were two types of roads:

a. the long, straight thoroughfares intended for commerical and military traffic, which usually followed the valleys of the larger rivers and connected cultural and industrial areas;

b. the unimproved roads which had developed through constant use of the same route connecting small settlements with nearby fields and forests.

2. Condition and Capacity of Roads

In contrast to the former Baltic States where paved roads were common, the roads in European Russia had paved or asphalt surfacing only in and near large cities and industrial centers. The only road which had been built

according to western European standards and which was given constant maintenance was the Minsk - Moscow highway. The Germans designated this highway as Army Group Center's "Rollbahn."

The terms "Tratke" or "Greter" were used to refer to those through roads which cut straight across country and were often more than 100 yards wide. In summer these roads were extremely dusty. After a rain or thaw they became so mired that they could not be used by wheeled vehicles. Deep gullies cutting across these roads were particularly troublesome. Attempts to overcome the effects of weather by digging drainage ditches or by rolling were of little help because the roads did not have a hard top.

Source: Generalleutnant a.D. Max Bark, Comments on Russian Railroads and Highways (Unpublished Foreign Military Studies Typescript #T-7 Historical Division USEUCOM, 1954).

APPENDIX C

A COPY OF A GERMAN PROPAGANDA LEAFLET DISTRIBUTED ON 15 JULY 1941

FIGHTER OF THE RED ARMY

Your Marshal Timoschenko loudly proclaimed: "Anyone talking of retreat will be shot!" Fighters, think it over, why does your Marshal mention retreat at all? He speaks of retreat only, because the entire Red Army has already been smashed.

Therefore, in order to save his own skin and that of his comrades, the army commanders, he intends to drive the sons of the Russian people treacherously into the fire of the German guns and machine guns.

It is possible that your sacrifices would check the advance of the German Army for a few hours, or a whole day, but what then? Think it over carefully!

You know what little time it took the German Army to destroy all obstacles and advance deep into the area of Soviet Russia. Many of you were standing at the German frontier. Where are you now?

Why all the sacrifices? Why all the bloodshed? Just so that the Jews and their servants, your treacherous government, can stay in power one day longer?

They are going to escape into foreign counties anyway, their pocketbooks filled, in order to lead a carefree existence there. But what about you?

Death and destruction are awaiting you! And now think it over yourselves and choose between annihilation, a bloody death, or honorable captivity!

Every man who has fought hard in the ranks of his own troops and surrenders just because he has realized that it does not make sense to keep on fighting is entitled to honorable captivity! That we promise you!

Source: Captain John Buchsbaum, German Psychological Warfare on the Russian Front 1941-1945 (Typescript Office of the Chief of Military History, Department of the Army, 1953).

APPENDIX D

OKH DEPLOYMENT DIRECTIVE OF 31.1.41 BARBAROSSA

1. TASK

In case Russia should change her present attitude towards Germany, all preparations are to be completed, as precautionary measures, to make it possible to defeat Soviet Russia in a quick campaign even before the end of the war against England. The operations should be so conducted that the mass of the Russian army in Western Russia will be destroyed by deep armoured thrusts. The withdrawal of elements left intact into the depth of Russian space will be prevented.

2. ENEMY SITUATION

It is assumed that the Russians will accept battle west of the Dnieper and Dvina at least with strong parts of their forces. They will make use of the partly strengthened fortifications of the new and old frontiers and of the many waterways which favour the defence. The Russian Command will therefore have to make a particular effort to commit sufficient forces to hold on as long as possible to its air and naval bases in the Baltic provinces and to the flank protection of the Black Sea. The unfavourable outcome of the battles that may be expected south and north of the Pripet Marshes will force the Russians to attempt to bring

the German attack to a standstill on the Dneiper-Dvina line.

3. INTENTION

The first intention of the OKH within the task allocated is by means of swift and deep thrusts by strong mobile formations north and south of the Pripet Marsh to tear open the front of the mass of the Russian Army which it is anticipated will be in western Russia. The enemy groups separated by these penetrations will then be destroyed. South of the Pripet Marshes Army Group 'South'--Field-Marshal von Rundstedt--will exploit the swift breakthrough by strong armoured forces from the Lublin area in the direction of Kiev, in order to cut the communications across the Dneiper of the enemy in Galizia and the West Ukraine. The Dnieper crossings at and below Kiev will be taken, thus ensuring the freedom for the subsequent co-operation of Army Group 'South' with the German forces operating in northern Russia or for new tasks in south Russia.

North of the Pripet Marshes Army Group 'Centre'--Field Marshal von Bock--will commit strong mobile forces from the Warsaw-Sulwalki area to force a breakthrough towards Smolensk. This will permit the turning of strong formations to the north in order to cooperate with Army Group 'North'--Field Marshal von Leeb, attacking from East Prussia in the general direction of Leningrad. Both army groups will destroy the enemy formations in the Baltic area, and, in co-operation with the Finnish Army and possible

German forces from Norway, finally put an end to the enemy's ability to resist in northern Russia, thus ensuring freedom of movement for further tasks--perhaps in co-operation with the German forces in southern Russia. In the event of a sudden unexpected collapse of enemy resistance in northern Russia, the abandonment of the turning movement and an immediate thrust towards Moscow could be considered.

The opening of the attack will be co-ordinated along the entire front (B-Day, Y-hour).

The Conduct of Operations will be based upon the principles proved in the Polish campaign. However, it must be noted that, in spite of the clear concentration of force to be achieved at decisive points, the enemy forces on other sectors of the front must also be attacked. Only thus can powerful enemy formations be prevented from withdrawing and evading destruction west of the Dneiper-Dvina line. Furthermore, the effect of the enemy Air Force must be expected to be more strongly felt by the army, because the full strength of the Luftwaffe will not be available for the operations against Russia. Troops must be prepared for the use by the enemy of chemical weapons from the air.

4. TASKS OF THE ARMY GROUPS AND ARMIES

a. Army Group 'South' will drive its strong left wing--with mobile forces in the lead--towards Kiev, destroy the Russian forces in Galizia and in the West Ukraine while they are still west of the Dneiper, and achieve the early

capture of the Dnieper crossings at and below Kiev for the continuation of operations both sides of the river. The operation is to be conducted so that the mobile formations from the Lublin area are concentrated for the breakthrough towards Kiev. Within the framework of this instruction Army Group 'South' headquarters will issue more detailed directives to the armies and the Panzer Group for the following tasks:

The 11th Army will protect the area of Rumania vital to the German war economy against a breakthrough of Russian forces. As part of the attack by Army Group 'South' it will pin down the enemy forces on its sector by giving an exaggerated impression of strength, and subsequently, in co-operation with the Luftwaffe, it will prevent by means of a close pursuit the orderly withdrawal of the Russians across the Dnieper.

The first task of Panzer Group I will be in co-operation with the 17th and 6th Armies to break through the enemy forces near the frontier between Rawa Ruska and Kowel, to advance Berdisheb-Zhitomir, and to reach the Dnieper as soon as possible at and below Kiev. Then, under the direction of Army Group Headquarters, it will continue the attack in a south-easterly direction along the Dnieper in order to prevent a withdrawal of the enemy in the West Ukraine across the Dnieper and to destroy him by an attack from the rear.

The 17th Army will break through the enemy border defences north-west of Lemberg (Lvov). By means of a vigorous advance on its strong left wing, it must attempt to push the enemy back south-eastwards. In addition, the army will take advantage of the advance of the Panzer Group quickly to reach the area Vinnitsa-Berditchev so that according to the situation it can contiune the attack to the south-east or east.

The 6th Army will break through the enemy front both sides of Luck in co-operation with elements of the Panzer Group I. While covering the north flank of the army group against interference from the Pripet Marsh area, it will follow the Panzer Group I to Zhitomir with all possible speed and strength. It must be ready, on the orders of Army Group 'South' headquarters, to turn south-eastwards with strong forces west of the Dnieper, in order to co-operate with Panzer Group I in preventing the enemy in the West Ukraine from withdrawing over the Dneiper.

b. Army Group 'Centre' will break up the enemy in White Russia by driving forward the strong forces on its wings. It will quickly win the area around Smolensk by uniting the mobile forces advancing north and south of Minsk and so achieve the prerequisites for co-operation between strong elements of its mobile troops and Army Group 'North' in the destruction of the enemy forces fighting in the Baltic states and the Leningrad area.

Within the framework of this instruction Army Group 'Centre' headquarters will issue more detailed directives to the Panzer groups and armies for the following tasks:

Panzer Group 2 in co-operation with 4th Army will break through the enemy forces on the frontier at and north of Kobryn. By means of a swift advance to Slutsk and Minsk it will meet Panzer Group 3 advancing from the area north of Minsk and achieve the prerequisites for the destruction of the enemy forces between Bialystok and Minsk. In close contact with Panzer Group 3, it will quickly achieve the further tasks of winning the area around and south of Smolensk, preventing the concentration of enemy forces in the upper Dneiper region and so preserve the army group's freedom in the choice of subsequent tasks.

Panzer Group 3 in co-operation with 9th Army will break through the enemy forces on the frontier. By means of a swift advance in the area north of Minsk, it will meet Panzer Group 2 advancing from the south-west towards Minsk and achieve the prerequisites for the destruction of the enemy forces between Bialystok and Minsk. In close contact with Panzer Group 2 it will quickly achieve the further task of reaching the area around and north of Vitebsk, preventing the concentration of enemy forces in the upper Dvina region and so preserve the army group's freedom in the choice of subsequent tasks.

4th Army will achieve the crossing of the Bug and thereby will open the way to Minsk for Panzer Group 2. It will advance with its main strength across the Shava River

south of Slonim, and in co-operation with 9th Army it will take advantage of the advance of the Panzer Groups and destroy the enemy forces between Bialystok and Minsk. Its further tasks will be: to follow the advance of Panzer Group 2 and, protecting its south flank against [attacks from] the Pripet Marshes; to seize crossings over the Beresina between Bobruisk and Borysau; and to reach the Dnieper at and north of Mohilev.

9th Army in co-operation with Panzer Group 3 will break through the enemy forces west and north of Grodno. With the main weight on its north wing it will drive towards Lida-Vilna, and, taking advantage of the advance of the Panzer Groups it will establish contact with the 4th Army and destroy the enemy in the area between Bialystok and Minsk. The next task of the 9th Army will be to follow Panzer Group 3 and reach the Dvina at and south-east of Polozk.

c. Army Group 'North' will destroy the enemy forces fighting in the Baltic area, and will deprive the Russian fleet of its bases by occupying the Baltic harbours including Leningrad and Kronstadt. At the appropriate time the OKH will order powerful mobile forces from Army Group 'Centre' advancing on Smolensk to co-operate with Army Group 'North'. Within the framework of this task Army Group 'North' will break through the enemy front with its main effort towards Dvinsk. It will drive its strong right wing with mobile troops thrusting across the Dvina

as quickly as possible to reach the area north-west of Opotschka and so prevent the withdrawal of battle-worthy Russian forces eastward from the Baltic region. It will also achieve the conditions for a further swift drive towards Leningrad.

Panzer Group 4 in co-operation with 16th and 18th Armies will break through the enemy front between Wystiter Lake and the Tilsit-Schaulen highway, and will thrust to the Dvina at and below Dvinsk and establish bridgeheads across the river. Furthermore, Panzer Group 4 will be required to reach the area north-east of Opotschka in order to be able to drive on north-eastward or northwards according to the situation.

16th Army in co-operation with Panzer Group 4 will break through the enemy with its main effort on both sides of the road Ebenrode-Kovno, and by rapidly advancing its strong right wing behind the Panzer corps it will reach the north bank of the Dvina at and below Dvinsk.

The next task of the army will be to follow Panzer Group 4 and to reach the Opotschka area as soon as possible.

18th Army will break through the enemy on its sector with its main concentration on and east of the Tilsit-Riga highway, and will cut off and destroy the enemy forces south-west of Riga by swiftly thrusting most of its forces over the Dvina at and below Stockmannshof. It will then block the approach of Russian forces south of Lake Peipus by means of a swift advance to the line Ostrov-Pskov, and

in accordance with the directive of Army Group 'North'--possibly in co-operation with mobile troops north of Lake Peipus--mop up the enemy in Estonia. Preparations are to be made so that the surprise occupation of the Baltic Islands of Oesel, Dago, and Moon can be carried out as soon as the situation permits.

5. pp. [Spare]

6. TASK FOR THE ARMY OF NORWAY (directly subordinate to the OKW):

a. The most important task remains to ensure the security of the entire Norwegian area not only against raids, but also against the serious attempts at landings by the British which must be expected in the course of this summer. This task requires that:

i. all energies and means of transport will be used to ensure that the batteries earmarked to strengthen the coastal defences will be installed by mid-May.

ii. formations at present located in Norway will not be appreciably weakened for the achievement of tasks connected with operation 'Barbarossa'. Indeed, the sector most endangered--Kirkenes-Narvik--will be strengthened. This reinforcement is to be achieved with forces already in Norway.

b. In addition to its defensive role the Army of Norway has the following tasks:

i. advance into the Petsamo area at the start of the main operations, or if necessary even earlier, and, together with the Finnish forces, defend it against attacks from the land, sea, and air. Particular significance is attached to the safeguarding of the nickel mines, which are important to the German war industry (Operation 'Reindeer').

ii. Envelop, and later, when sufficient assault forces are available, capture Murmansk as a base for offensive action by its land, sea, and air forces (Operation 'Silver Fox'). It is to be expected that Sweden will maintain the security of her own north-east frontier with adequate forces.

7. OKH RESERVES

At the start of the operation the reserves of the OKH will be allocated to a large group in the area Reichhof and east of Warsaw and to small groups in the Zamosc, Suwalki, and Eydtkau area.

8. SUPPORT BY THE LUFTWAFFE AND NAVY

The task of the Luftwaffe is to eliminate as far as possible all interference by the Russian Air Force and to support the main operations of the Army especially those of

Army Group 'Centre' and the left wing of Army Group 'South'. During the main operations the Luftwaffe will concentrate all force against the enemy Air Force and in immediate support of the Army. Attacks against the enemy industry will be carried out only after the operational objectives of the Army have been attained.

Air support is allocated as follows:

Air Fleet 4 - Army Group 'South'

Air Fleet 2 - Army Group 'Centre'

Air Fleet 1 - Army Group 'North'

In the course of conducting its main role against Britain and safeguarding our coasts, the Navy will prevent enemy naval forces from breaking out of the Baltic. Until the Russian fleet has been deprived of its last Baltic base at Leningrad, major naval objectives will be avoided. After the elimination of the Russian fleet, the Navy will have the task of safeguarding sea traffic in the Baltic and the supply of the north wing of the Army.

9. THE PARTICIPATION OF OTHER STATES

The active participation of Rumania and Finland in a war against the Soviet Union is to be anticipated on the flanks of the operation. The form of the co-operation and of the subordination of the forces of both countries under German command will be decided upon at the appropriate time. Rumania's task will be to assist the German forces concentrated there in pinning down the enemy facing them, and also to provide assistance in the rear areas.

Finland's tasks will be to eliminate the Russian base at Hangö and to cover the concentration of the German forces in north Finland. By the time Army Group 'North' has crossed the Dvina Finland will also attack the Russian forces on her south-east front in accordance with the requirements of the OKH, concentrating either east or west of Lake Ladoga, preferably the former. She will then support Army Group 'North' in the destruction of the enemy. The active participation of Sweden is probably not to be expected. It is possible, however, that Sweden will permit the use of her railways for the concentration and supply of the German forces in North Finland.

Signed: von Brauchitsch

Source: Barry Leach, German Strategy Against Russia 1939-1941 (Oxford, 1973).

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